Paper Industry Faces Prosperous Era

THE Calendar Year of 1925 is drawing to a close. The end of 1925 finds the paper industry in the United States with a much more satisfactory outlook than the beginning of the year. For the past five years the industry in the United States has had a most severe test. Five years ago this date the 1919-1920 boom in the paper industry was tottering to a fall. The Commodity Index Number, which in May, 1920, stood at 240, was hitting the toboggan slide every day. In December of that year, paper prices generally fell off as much as $50 to $60 overnight. Nineteen twenty-one was a continuous decline. The Index Number in January, 1922, reached the low point of the past five years—138—a decline of 102 points from May, 1920, and a decline sufficient to have wiped out the business of the United States except for the fact that the Federal Reserve Bank was the rescuing institution.

From the low point of 138 in January, 1921, it worked back up in April, 1923, to 169, and then declined again to a low of 142.7 in June, 1924. It worked up to 164 in the beginning of this year, but in the spring went down to 154; in the early fall went back up to 162; and for the past four months it has been ranging between 155 and 159.

We reprint this record taken from Professor Irving Fisher's Table of Average Price Variations of 200 Commodities from week to week. From this it will be seen that from the big swing of 102 points between 1920 and 1922, there was a secondary swing of the pendulum amounting to 27 points. Then from 1924 to the peak this year there was a swing of 18 points.

In the last five months, there has only been a swing covering a matter of five points. In other words, we have come at the close of 1925 to a period of stabilization of commodity prices.

The principal result of this period of stabilization is confidence—confidence of the consumer of goods in the stability of prices. With this confidence every manufacturer can go forward into the coming year, producing and manufacturing his goods with the conviction that there will be no violent price changes to fear whatsoever. If at the end of this year, as is generally reported, the producers and distributors of commodities are operating at a profit, then those profits will be secured for the coming year under a return of confidence and an era of stabilized prices.

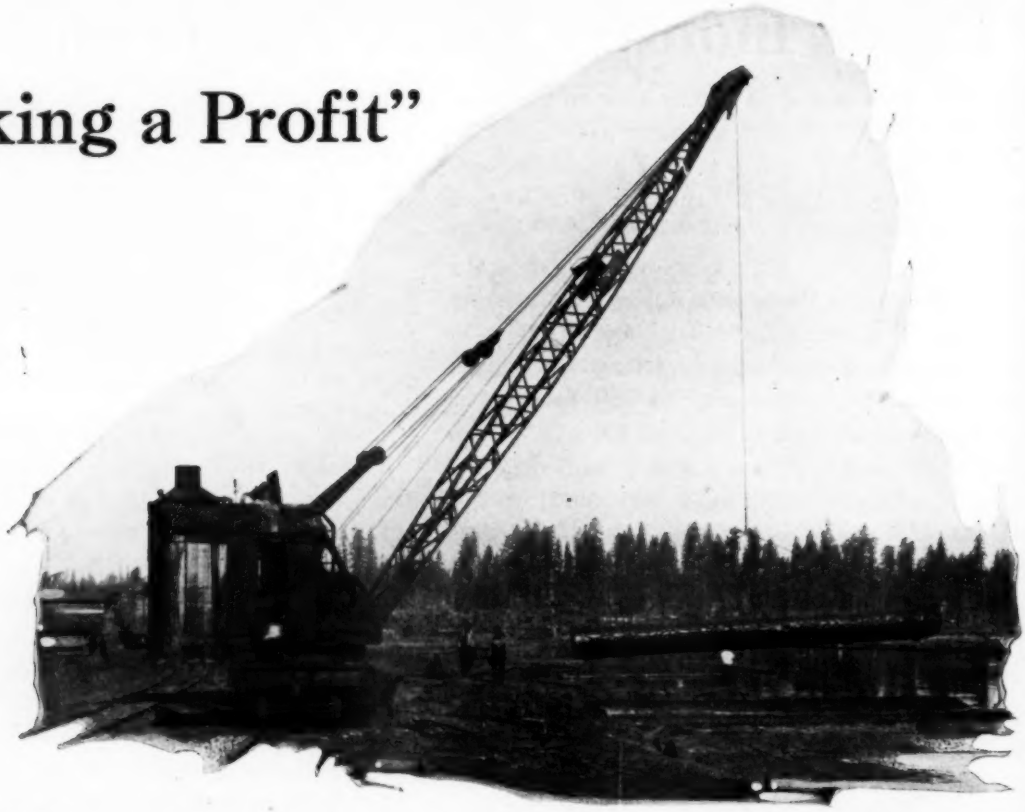
Getting back to the paper business generally, the close of the year has brought to the attention of all consumers and manufacturers of paper the fact that raw materials of the industry are in large demand and hard to find. Pulps of all kinds have been gradually decreasing throughout the past year. Nothing illustrates this so forcibly as a comparison of prices on the imports of kraft pulp into the United States in September, 1924, and September, 1925.

In September, 1924, there was imported from Sweden, 19,240 tons of pulp at an average price of $51.11 ex dock, New York. In September, 1925, there was imported from Sweden 11,622 tons of sulphate pulp at an average price of $60.06 per ton ex dock, New York. This is a straight rise of almost $9 per ton besides a decline in quantity of 8,000 tons. Since September, the average price of sulphate pulp imported from Sweden and Europe has crept higher until today the average price is not far from $63 per ton, which is fully $10 per ton higher than the price a year ago this month. One great contributing factor to the rise in price and lessening of quantity is that the pulp producing nations of Europe have enjoyed the return in large numbers of their old customers, who had been lost to them during the war and the five-year readjustment period following 1920.

The United States is dependent upon the foreigners for some 50 per cent of our raw material pulps, both sulphate and sulphite, and an even greater percentage of mechanical pulp and pulp wood. Therefore, with the rest of the paper consuming countries of the world drawing on the foreign supplies in constantly increasing quantities and at better prices than American producers are willing to pay, the shortage of pulp for 1926 is apparent and has already been estimated at 100,000 tons.

With an enlarged and continuously enlarging volume of business in the United States, and with a continuously expanding foreign business, and little or no provision being made in the past ten years for increased production of raw materials, the paper industry today faces at the close of 1925 a prospect of one of the most prosperous years in its entire history with the opening of 1926.

"Making a Profit"



In the Paper Industry with Brownhoists

Mill men talked about making profits at their yearly conference and we'll wager that when they got home, many of them studied very carefully their handling methods. Brownhoist has studied material handling methods for more than 40 years and has been able to help hundreds to handle materials economically.

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MATERIAL HANDLING EQUIPMENT

All Aboard for Safety Contest

AS ANNOUNCED in the November issue of THE PAPER INDUSTRY, the second Contest for the best accident record covering a period of six months, beginning January 1, 1926, will be in effect at that time. The rules which will govern the Contest have been gone over very thoroughly by the officers of the Paper and Pulp Section of the National Safety Council with the result that they are in full concurrence with the provisions stated in our November announcement.

For the benefit of those who might have overlooked this page, the main difference in the rules for the next Contest over those in effect in the August competition, is that in place of the equalization factor used in the last Contest, the usual severity rate will be employed as the governing factor.

Another essential point is that in the event of two or more mills being tied at the end of six months, the Contest will continue until the tie is broken.

Only members of the National Safety Council are eligible to this Contest and mills are obliged to be entered separately unless a company has several mills located close together that are operated by a single supervising organization, in which event, all mills so operated can be entered as one mill. The number of employees reported and the number of hours worked shall include all office employees located at the mill.

Between now and the first of January, the National Safety Council will have mailed to all of the members of the Paper and Pulp Section application blanks, letters of general instruction and display bulletins.

All participants will be asked to report their experiences each month and these will be published in THE PAPER INDUSTRY and the National Safety News.

Observations of a Traveler

IT IS a big jump from Holyoke, Mass., to Canton, N. C., but I had heard so much of a new development in reciprocating engines at the plant of the Champion Fibre Company in Canton that I decided to look into it.

It is a pleasant trip when weather conditions are good and I was fortunate enough to have good weather all the way.

Canton is a fair-sized mountain town, with an elevation of 2,600 feet above sea level; it is often visited by tourists who find excellent accommodations at a hotel and inn or tea house. While it is an agricultural, and to some extent a mining community, with good dairy resources, the town is almost wholly dependent for its existence on the pulp and paper mills of the Champion Fibre Company, around which all the activities of the place appear to center.

I received a hearty invitation from Mr. Robertson, general manager, to join him and the heads of his departments at the midday meal. It was only a five-minute walk from the center of the village to the executive offices of the mill and I soon found myself seated at the right hand of Mr. Robertson in the company of some twenty-two superintendents, engineers, chemists and foremen who come together at the noon hour every day for lunch and a plant conference. Foremost among these was Charles S. Bryant and A. D. Wood, the first named being secretary of the company. "Al" Wood needs no introduction to readers of THE PAPER INDUSTRY, to whom he is as well known as his chief, Reuben B. Robertson; he is superintendent of the sulphite mill.

Through the Canton Mill

Shortly after 1 o'clock, I started out under Mr. Robertson's guidance for a tour of the plant, where the three principal kinds of chemical pulp are made—sulphite, sulphate and soda. Pulp was first produced at the Canton mill in 1908, the beginnings of the plant being comparatively small, but since that time it has been enlarged and developed in many ways. In addition to pulp and paper there is now a notable production of by-products, like tannic acid, caustic soda, turpentine and container board, some of these being made from materials formerly wasted.

Operating conditions at the Champion Fibre Company's mill permit of the use of exhaust steam in both manufacturing processes and for heating, and a twin Corliss engine is used which operates at 120 R. P. M., direct connected to an Allis-Chalmers generator, capable, it was represented, of delivering 1,500 kilowatts. This is said to be the largest single unit of reciprocating engine running at the high pressure claimed for it—230 lb. initial, 100° superheat and 130 lb. back pressure.

The power plant or boiler room is a spacious, well lighted and ventilated building, a model of neatness and modern efficiency. Mr. Robertson was disinclined to talk of actual results obtained with the new power installation, but he left me to infer that some of the contract terms of the designers and builders had yet to be fulfilled. In operation, the generator appeared to be running with a fair degree of smoothness, though a trifle noisy.

The various departments of the Champion Fibre Company's mill cover a good deal of ground, something like thirty acres, but it is not the world's largest pulp mill, nor is it the only plant of its kind making the three chemical pulps. It is, however, the only pulp mill that makes soda pulp as a by-product in the extraction of tannic acid from chestnut trees. This may appear to be a contradictory way of stating the matter, but it is true that the wood is first treated for the extraction of tanning material, and the chips afterward cooked with soda to produce soda fiber. The capacity output of tannic acid, so called, is 500 barrels daily, but there is not so much tanned leather used of late years since rubber and other leather substitutes have become the vogue, and capacity production has therefore not been steadily maintained at 500 barrels.

The daily production of soda pulp is 100 tons. When to this are added 100 tons of sulphite pulp and 65 tons of sulphate or kraft pulp, it will be seen that the mills at Canton make 265 tons of combined pulps, most of which goes to supply the needs of the Champion Coated Paper Company at Hamilton, Ohio, though paper is also made at Canton to the tune of 100 tons daily, not to mention 30 tons of container board. When operating at full capacity, there is available from the electrolytic plant a yield of 12 tons of caustic soda daily.

Taking it all in all, the plant of the Champion Fibre

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In All Industries with the
SNOW-MOTOR, FORDSON POWERED

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The **SNOW-MOTOR** is the first practical commercial machine which provides *sure, dependable transportation OVER snow, no matter how deep, for all purposes, under all conditions.*

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"The Last Link In The Chain of Transportation"

Company at Canton, N. C., is an institution of some magnitude. After leaving the bleach plant where five units of the Wolf high density bleaching system are operated continuously, Superintendent Wood relieved Mr. Robertson and took me over the building of the Young Men's Christian Association, or Champion Y, as it is called. Every employee and his wife and children belong to the Champion Y which conducts a school and offers other educational opportunities, there being an auditorium capable of seating several hundred.

An infirmary or emergency hospital is one of the interesting adjuncts to the Canton plant. Throughout the mill, insistence is made on the early dressing of wounds and every provision is made at the emergency hospital for the treatment of both major and minor injuries, a nurse being constantly in attendance, while a doctor makes regular visits and can be called at any time in an emergency. The equipment of the hospital is as complete as can be seen anywhere, with sterilizers, operating tables and beds.

By the operation of an employees' store by the employees themselves in a separate building, household necessities can be purchased at a small margin over cost. It is a convenience which they can use or not as they like.

As it was my purpose to visit the big mills of the West Virginia Pulp and Paper Company at Covington, Va., on the following day, I was obliged to cut short my visit to Canton, notwithstanding a feeling I had that several days could be spent profitably investigating the operations of the plant, as well as the activities of the executives and employees, along industrial, domestic and educational lines. Canton has a delightful climate, it being mild in winter and cool in summer so that a few days could be passed there very pleasantly.

A Visit to Covington

In order to reach Covington, Va., from Canton, N. C., one must travel in a northeasterly direction to Charlottesville where connections can be made over the Chesapeake & Ohio R. R. for the western part of Virginia where Covington is situated. There happened to be a gathering of the chemists connected with the West Virginia Pulp and Paper Company at the Covington plant on the occasion of my visit, and it was pleasant to meet Dr. Viggo Drewsen and many of his assistants and colleagues connected with the five mills of the company.

After an introduction to William A. Luke, the resident partner and manager, I was taken on a tour of inspection through the extensive series of plants, beginning with the machine shop where Charles Reynes is master mechanic. This is perhaps one of the largest paper and pulp mill machine shops in the United States and it is supplied by its own foundry situated not many feet away across the Jackson River, where the soda mill, extraction and by-product factories are situated. These I was unable to visit on account of time limitations.

At first sight the machine shop, with its massive lathes and radio drill presses, has the appearance of an independent machine works, so impressive is the array of equipment and number of engineers and machinists at work.

My guide during the tour of the buildings was P. J. Gilmore, veteran sulphite mill superintendent, a native of the region, who has a son following in his footsteps, but employed at present in the beating room where he keeps one of the sights of the paper mill, a great 210-inch book paper machine, the largest in the world, supplied with stock. This machine produces 65 to 75 tons of book paper daily and is equipped with the latest modern improvements. From the machine shop we took our way to the electrolytic plant, another immense undertaking, which supplies all the bleach and soda liquor consumed in the pulp mill. The daily production of soda and sulphate pulps aggregates 329,000 lbs., while sulphite pulp alone is made at the rate of 325,000 lbs. a day.

The final touches were being put on a new power plant during my visit. A massive General Electric Company turbine generator capable of delivering 4,000 kilowatts has been installed. This will furnish 5,000 additional horsepower. In my walks about the mill I was impressed with the admirable arrangements for lighting and ventilating the different departments and the general appearance of neatness and order that prevails. There is evidently a fine **esprit de corps** among the employees. Instead of being engulfed in gloom as may be observed in some plants, the workers at Covington are a happy set of men who appear to take joy in disposing of their tasks, and some of the signs which are displayed on the walls of different departments seemed hardly necessary, as for instance the following query displayed in poster fashion:

You Know

A fellow will never get any more out of a job than he puts into it.

Are you putting all into your job that you can?

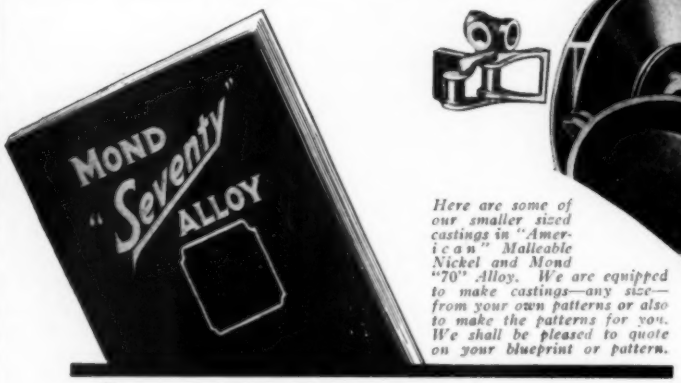
As at Canton, I found the time at my disposal all too short to give the Covington mill of the West Virginia Pulp and Paper Company the study which its diverse activities call for. Pages could be written about the reclaiming system operated in connection with the sulphite mill, where cymene is regularly recovered in addition to tanning extracts and other by-products, but I was due in Richmond, Va., the next day for a meeting of the Southeastern Division of the Superintendents' Association, which meant another lengthy train journey, so I was reluctantly obliged to leave this immense plant after little more than a bird's-eye view of it.

The Junior Editor

THE ABILITY to carry on the duties of the editorial sanctum in this publication office has been attended with difficulty—we admit—since the junior editor, Charles Edward Dowd, joined the staff on October 7, 1925.

The exhilaration of this new association has occupied the greatest part of his father's heart and time. Since his grandfather is the publisher and boss of the institution, however—and i n c i d e n t a l l y all swelled up with pride over the event—his toleration has been enjoyed, and our readers can henceforth confidently expect that what might have been erstwhile lapse will now be succeeded by greater efforts than ever before to give them the highest class trade magazine their two dollars can buy.

The staff of THE PAPER INDUSTRY appreciates the confidence and good will of its readers and advertisers and wishes for them peace and happiness throughout the Christmas season and a full enjoyment throughout the coming year of those blessings which we all share in our nation's prosperity.



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THE PAPER INDUSTRY

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Vol. 7 DECEMBER, 1925 No. 9

Standardizing Power Production in the Paper Mill

Report No. 3—Power Production Record

By LYNN L. ARMANTROUT

ALL large and efficient power plants that make a business of generating steam and electricity for sale, are equipped with a complete installation of meters and measuring apparatus. The operating force depend upon these meters, and indicating or measuring devices, for guidance in most all their efforts to obtain maximum efficiency in steam generation. Executives rely on daily power distribution and efficiency reports, whose data is based on these meters, for final information regarding vital features of plant performance affecting the total power cost.

These large public utility stations make a special study of every important phase of power generation, and as a result their plants are models of efficiency and low costs which industrial plants are profitably copying to a large degree. They are able to show continuous records of highest efficiency and low costs, largely because they have standardized the performance of each power generating unit and have standardized their power cost. This has been accomplished by metering every unit relating to efficiency of power generation, and by keeping a close check on all items relating to power cost. The daily data secured from meters and cost reports are tabulated and recorded as shown by the writer under subjects Power Distribution and Efficiency Report, and Power Cost Report, in the October and November issues respectively of THE PAPER INDUSTRY.

When these daily cost and efficiency records are kept over a long period of time and this data is closely studied, it gradually becomes apparent that there are a number of items which so vitally affect the final results, that if they can be kept constant the total results will be fairly constant. In the up-to-date power plant, such items as boiler and grate efficiency and cost per B. H. P. are closely watched and kept fairly constant. The best records made by the plant are then noted and used as a guide for future reference.

By predetermining a standard rate of operation for all units, it is possible to standardize the power efficiency and cost. When a plant is operated by competent men who are guided by the proper boiler indicating and recording meters, continuous high efficiency of each unit will result. In practice, the aim is to keep every unit in the plant working at a predetermined rate of efficiency which is set by records of the best plant performance obtained to date. Standard degrees of superheat, heat of boiler feed water and economizer duty, CO_2 and temperature of flue gases, draft pressure, and other items to be steadily maintained by the operating force are established and served as guides for standardizing power generation.

For standardizing power cost, a chart or series of tables can be compiled from the best operating records and classified according to the B. H. P. load on the plant. For instance, we can assume a standard of 1½ cents per B. H. P. with a 26,430 B. H. P. load. With boiler and grate efficiency of 68 per cent we will burn 98.9 tons of coal. Allow $86.66 fixed charges, $54.10 for operating material, $44.19 maintenance material, and $130.30 for labor. The charge for each item must then be distributed so as to come within its allowance if the standard cost is maintained.

Many years of study and steady improvements have resulted in the acceptance of certain general standards of power cost and efficiency to be expected and worked for in the generation of steam and electricity. Such standards of power performance have

not been accurately established in paper mills, however, although there exists a great need for accurate terms of comparative power-production in order to determine the proper standard of performance to be expected from a given installation.

Greatest Power Cost in Consumption Units

Many paper mills are now giving considerable time to the study of power costs and efficiency but these almost invariably stop at the power plant, and seldom include a record of how efficiently or economically this steam and electricity is applied in the production processes. Inasmuch as paper mill power costs represent from one-third to one-half the conversion charges in the average mill, it is evident that paper mill power records must follow the subject from the coal pile to calender stacks if they are to be of the utmost value.

The generation of motive power represents a very small part of the coal consumption in plants using exhaust steam for process work. Most of the coal or power cost is properly chargeable to drying, boiling, heating of water and building, etc. Only 39 B. T. U.'s of heat out of 1195 B. T. U.'s in every pound of steam at 150 pounds gauge pressure, are used for delivering power by a steam turbine or reciprocating engine exhausting against 5 pounds back pressure. In such a case, 1156 B. T. U.'s of every pound of steam passing through an engine or turbine is used by the mill in paper making process work.

From the above facts, it is apparent that standardizing power efficiency and cost of generating motive power in the paper mill are important, but that as a means of lowering the cost of power per ton of paper or lowering the amount of coal used per ton of paper, such records are of only primary importance. The power plant proper may maintain a standard high rate of efficiency at a low cost, but unless the steam so generated is used economically for the most efficient power production in the paper making processes, the power cost per ton of paper will be too high.

Using the Power Distribution and Efficiency and Power Cost records, previously given, as a basis, the Power Production Record shown here can quickly be compiled and will make it possible to standardize power production as accurately and profitably as has been done in power generation and cost. The cycle of heat, or power as represented by tons of coal used, will then be completed and the large power consumption of the production processes accounted for.

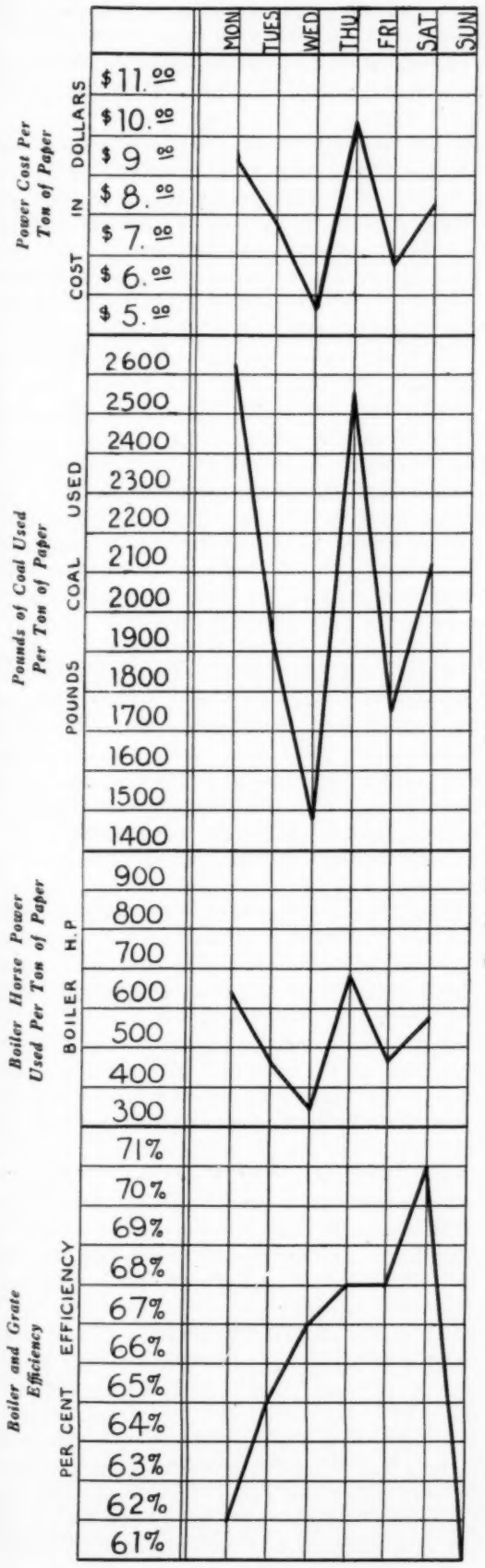
The Power Production Record shows all items that may serve as a ready indicator of any variation in power performance that could be attributed to excessive steam or electrical usage in the production departments. Some items are also given on this record that appear in other reports, and this should be done as the record shown is the one used by the chief engineer and superintendent for ready reference. The important items given in this way are always seen quickly for the reason that they might go unnoticed in the large group of figures shown on other reports. Again the items repeated on this report are associated with other final information in such a way that their importance and bearing on the whole group of results is readily seen. It is a summary of important items in the other two reports, as well as the guide for efforts made to standardize power production.

Power requirements vary with the kind or grade of paper being made, and for that reason the paper being made at the time report is compiled should be shown in conjunction with other data recorded. Such variation is mainly due to the power requirements of

Power Production Record

■	KIND OF PAPER MADE	Caliper of Paper	Mach. Speed in Feet Per Min.	Back Press. on Engine	Tons of Paper Finished	Tons of Paper 'Broke' and 'Trim'	Aver. Indicated K.W.H. Load	Aver. Indicated Boiler H. P. Total Load	Lbs. Steam Used Per Lb. Paper for Drying — Machine No. 1	Lbs. Steam Used Per Lb. Paper for Drying — Machine No. 2	Thous. Lbs. Steam Used in Beater Room	Boiler H. P. Used Per Ton of Paper	Tons of Coal Used by Main Mill	Boiler and Grate Efficiency	Lbs. of Coal Used Per Ton of Paper Finished	Power Cost Per Ton of Paper
Mon.	Plain Chip	20	130	5	130	3	1760	3643	2½	2½	9870	624	170	62%	2616	$9.43
Tues.	Wood Pulp Lined Yellow Tint Wall Board	40	108	8	92	0	776	2132	2		5740	495	88	65%	1913	7.92
Wed.	Lavender Tint Wall Board	40	115	6	110	0	925	1981		2	4760	360	81	67%	1472	5.76
Thurs.	Jute Outer Liner	18	130	5	70.4	.4	1053	2290		2½	6430	696	90	68%	2557	10.44
Fri.	Mill Wrappers, No. 1 Finish	22	200	8	106	0	1154	2361	2		4173	491	93.7	68%	1769	6.87
Sat.	Double Manila Lined News Box Board	19	135	7	140	2	1720	3516	2	2	8460	580	147.5	71%	2108	8.12
Sun.							759	905					38.6	61%		
Weekly Totals					648.4	5.4						Aver. 541	708.8	Aver. 66%	Aver. 2072	Av. In Sun. $8.67

See Corresponding Graphic Chart on Opposite Page



Graphic Chart of Power Production Record

the beater room. The beater room motive power load will often vary several hundred horsepower or kilowatts when preparing different grades of paper. This is proper, of course, as it naturally takes more beating or Jordan grinding to make some grades of paper than is necessary with other kinds. Paper stocks will vary in the amount of boiling required while the entire "furnish" on many orders can be made practically cold. This latter condition will make a difference in the steam consumed and its resultant coal consumption. Without considering the kind of paper being made when the power production record is taken, it will often be difficult to account for a seemingly large power cost per ton of paper which may, or may not, be justified.

The caliper of paper and average speed of paper machine are other items to be considered for their value in accounting for dryer steam used, or tons of paper made. It may occur in practice that steam pressure in the dryers will be high in order to dry paper going at a high speed, while in some mills the capacity and speed of paper machines are kept down due to lack of drying facilities. Either of these conditions can be remedied by installing the proper steam circulating system. Records of machine performance in this respect are of value in locating defects and for checking the performance of any improvements made.

The back pressure in the exhaust steam lines and consequently on the steam engines or turbines operating against it, is of vital importance in every paper mill and should be kept as low as possible. Adequate return systems should be maintained to aid in keeping this pressure down. It is pointed out in this respect that a steam engine with a cylinder 24 inches in diameter operating with 33 pounds mean effective pressure against 5 pounds back pressure and delivering 361.9 I. H. P., will have its power rating reduced to 307 I. H. P. if the back pressure rises to 10 pounds. In such a case an engine with power to spare will have its steam intake valves open for a longer part of each stroke and more steam will be consumed. Raising the back pressure 5 pounds on this engine is similar to adding a load of 54.9 H. P. onto it and if carried beyond the capacity of engine, will result in a plant shut down. In any event, excessive back pressure results in high steam consumption. Inasmuch as steam at 5 pounds pressure contains nearly as many heat units per pound as steam at 10 pounds pressure, much better results are obtained by keeping the circulation high in paper machine dryers, rather than try to get a faster rate of drying by raising the back pressure. Carrying high back pressure for drying paper is a very costly practice and one that can surely be overcome.

All paper mill efficiency records consider only the finished marketable paper produced and naturally do not regard the defective paper made as having any creditable value for the production department. For

this reason, power production figures are based on the amount of finished paper made with the power delivered. While this is strictly proper, it will often be advisable for the engineer to know the amount of defective paper returned to the beater room. Most mills weigh all "trim" and "broke" on its way back to the beater room and the engineer can readily learn this amount.

Power-production costs and efficiency values depend largely on the output of the mill and when a plant runs for two or three hours out of a day without making acceptable paper, the power costs per ton of paper and relative coal consumption may show up very unfavorably. This is a common occurrence in most mills and seldom the fault of the power department, but as it so vitally affects the records of that department they should have the facts for reference purposes.

The indicated kilo-watt meter reading is given as a check on the electric load of the mill. The average indicated Boiler H. P. load is taken from the indicating steam flow meter which most plants have on their main steam header and shows the total steam load being delivered to the entire mill at that moment.

Pounds of steam used per pound of paper for drying is of great importance, and when found to be excessive should be attended to promptly, as any defect in the drying system will quickly affect the quality and production of paper. This matter has been the subject of a large amount of study which has resulted in valuable improvements in methods and costs for drying paper and there now exists a general approved system of drying paper which, when followed, makes the problem fairly simple and accurate. Some of these ideas are referred to above, under discussion of the back pressure item. There always is some unavoidable variation in the steam consumption per pound of paper, however, due to atmospheric conditions or moisture in the paper coming from the wet end of the machine, often caused by dirty press felts and similar conditions which would cost more to remedy than the steam amounts to.

Thousand pounds of steam used by the beater room is an item seldom available in accurate figures for the average mill. It varies greatly with the kind of paper being made and is hard to control. A few plants are installing meters on these lines and are obtaining results in saving of steam in this department, that quickly justify the meters cost and time spent on the subject.

A question regarding where to place the credit for a good record, or blame for a poor record of paper production often arises. It is very valuable in such cases, to know the boiler H. P. used per ton of paper. This information offers a ready and reliable means of knowing whether the power production results in question are due to the power generating departments or to the steam and power consumed by paper making units.

The cost per ton of paper for power may be high and investigation shows a maximum boiler and grate efficiency, in which case the high cost or high coal consumption per ton of paper may be accounted for by disclosing a large B. H. P. used per ton of paper. Indicating that the faulty operation was in the production department. In like manner, it may be noted that there is a low boiler and grate efficiency and low B. H. P. used per ton of paper, proving the power generating department responsible for the poor results. In this way, the item B. H. P. Used per Ton of Paper, will aid in solving many questions involving over-all plant operation.

The Boiler and Grate Efficiency data is given in the Power Distribution and Efficiency Record but is important enough to be shown on the Power Production Record as an indicator of operation in the coal consuming department. This data assumes added value when noted with daily or weekly totals of B. H. P. and pounds coal used per ton of paper, for comparing the relative efficiency of these departments during the same period of time.

Pounds Coal Used Per Ton of Paper

In almost every instance where an effort has been made to standardize performance in an industry, there arise one or more terms or figures which are merely related to a series of subjects contributing to a complete and final analysis, but which become misconstrued in time and are used as though they contain within themselves the entire elements of a detailed report.

In testing flue gases to ascertain the degree of perfect combustion attained in the furnace, the figure of 14 per cent CO_2 was set as the standard of combustion efficiency to be obtained if possible. This was long regarded as containing within itself all the elements affecting perfect combustion, when in fact it denoted only one of several conditions to be maintained if perfect combustion were to result. If the true value is to be realized from a flue gas test, the CO_2 contents in the flue gases must be considered in conjunction with ratio of air flow to steam flow, per cent of monoxide gases present, stack temperature, and other important elements contributing to perfect combustion. It is now generally known that the term CO_2 in the gases does not, within itself, contain all the elements of a detailed analysis.

A term having similar characteristics arose in the earlier days of paper making called "pounds of coal used per ton of paper," and has been used erroneously for years by some plants who have tried to set a standard for power production efficiency. The error of its use is that this term has been assumed to have within itself, all of the information usually expected from a detailed analysis of a mill. The item is important to know and is of great value when consid-

ered together with co-related data which gives the circumstances under which the subject item is obtained, but its value is practically nothing unless supported by these contributing items.

An old custom was to figure yearly how many pounds of coal were used per ton of paper, without consideration to machine days operation or production efficiency. The standard aim was to make a ton of paper with a ton of coal, and if the ambition was realized, the mill as a whole was considered good enough. If the coal used was too high, the engineer was unquestionably blamed, and if the coal used was lower than the preceding year, the engineer was declared to be above reproach. With the lack of metering and other fact finding equipment of those days, this method had its merits. Credit must be given the plant management of that time for realizing what an important part their coal consumption had in their yearly profits, and it was probably the term "pounds coal per ton paper" which marked the earliest steps at standardizing power production in the paper mill.

Power Production Analysis

We can analyze the power-production cost of a paper mill by finding the power cost per ton of paper and studying the main items that go to make up that cost. The Daily Power Cost Record will quickly show any great variations in operating or maintaining expense, and if the paper production is considered, the reason for cost variation will readily be seen.

As a general rule the production costs are closely watched and controlled in large measure by the office managers as well as the engineers, and for the purposes of this main subject we will assume that if power production can be standardized there will be a resultant standardizing of power production costs.

It is known that the largest contributing factor in power production efficiency is the amount of coal used per ton of paper. If this could be kept constant, the result as a whole would not vary so noticeably. This item depends, however, on the boiler H.P. used per ton of paper, boiler and grate efficiency, steam-electrical distribution, tons paper produced, and so on down the line of items shown in the Power Production Record.

The relative influence of these final results are very clearly shown by the graphic chart pictured here. It is quite evident from the week's record given that boiler and grate efficiency does not alter the power cost or pounds of coal used per ton of paper, as positively as does the boiler H.P. used per ton of paper. The latter item varies directly in proportion with the cost and coal consumption. Many plants find a weekly graphic chart valuable for watching the average performance of the mill.

These summary or final results are also in turn affected by items shown on the Power Distribution and Efficiency Report. We, therefore, have in these three records, a means of daily power production analysis in sufficient detail to check any faulty operating condition encountered in paper mills.

By rectifying the greatest known errors and operating every unit at its maximum efficiency, the mill will soon assume a set standard of power production. Adopting a system of records similar to the ones shown in these articles, entitled Standardizing Power Production in the Paper Mill, will enable any paper mill to determine the proper maximum standard to be maintained by every unit, the accomplishing of which will result in low power costs per ton of paper.

Plants operating continuously on one grade of paper can easily and very quickly find the proper standard of operation for each unit. With the proper interest on the part of superintendent and engineers, the indicated total boiler load and electrical load can be watched and regulated if it shows any considerable variation. If the production of mill is at maximum capacity, boiler efficiency is high, and power consumption is right, the power cost per ton of paper and other power production results are sure to be satisfactory.

Mills making various grades of paper on different dates can keep an indexed ledger with an entry of the best power production record made with each grade of paper. By keeping this ledger up-to-date and referring to it whenever the grade of paper changes on the paper machines, these mills can standardize their power production as accurately as the mills who make only one kind of paper.

Welding on Boilers

By S. W. MILLER

Past President of the American Welding Society

IN VIEW of the ever-widening applications of fusion welding throughout industry, and the probability that repairs to boilers made in this way will be proposed from time to time, it is well that those responsible for the results should bear several points in mind. For simplicity, these are listed briefly as follows:

1—Most boilers are insured.

2—Many boiler insurance policies are so worded that if repairs are made without the authority of the company carrying the insurance, the policy becomes void.

3—There are Federal, State and municipal regulations governing this work, as well as those issued by the insurance companies.

4—Only competent welders, used to boiler work, should be allowed to do the welding.

Therefore, the following precautions should be observed by the owner or his representative:

1—Examine the part of the boiler to be welded in company with the insurance company inspector, and get his approval before doing any welding.

2—Be present at the test after welding with the inspector.

3—If possible, get the inspector to sign a statement that the work has been properly done and that it has passed the test successfully.

4—If the boiler is not insured, and comes under Federal, State or municipal supervision, carry out the above program in company with the property authority.

If the boiler is neither insured nor under superivision of some constituted authority, ample precautions should be taken by the welder and the owner to protect themselves against possible future trouble. They should make a sketch of the location and size of the repair, with a clear statement of what was found wrong and how the repair was made. They should always make a hydrostatic hammer test of the finished job, using a pressure of 1-½ times the working boiler pressure, in the presence of witnesses, and get their signature to a statement of the facts. These papers should be carefully filed away. In such a case, no welding should be done which is not permitted by law or by good practice.

In case of marine work, the welder should pass the regular examination of the Federal Steamboat Inspection Service.

In all cases, the welder should make friends of the insurance and other inspectors by refusing to do work unless authorized by them, by being conservative in what work he recommends, and by doing nothing except a first-class job.

Foreman Training in the Paper Industry

Part IV—State Foreman Training Programs

By J. K. NOVINS

Author of "A Training Program for the Factory Foreman," "Foreman Training in Practice," "Manual of Practical Training for the Railroad Foreman," etc.

Foreman Training Facilities in Indiana

THAT Indiana University made the first start in the United States in the organization of factory instructor conferences as a part of a publicly directed activity under the Smith-Hughes Law, was the statement recently made by Professor G. F. Buxton, head of the Vocational Education Department of Purdue University. Also, the foreman training work now carried on in the state by the Purdue University, in co-operation with the state and federal educational departments, has reached a number of paper boxes and corrugated board industries in Indiana. Among the plants where Professor Buxton has carried on foremen's conferences was the Sefton Manufacturing Corporation at Anderson, Indiana, manufacturers of corrugated paper, fibre board shipping cases and cartons. It is therefore worthwhile, and of interest to present here a résumé of the foreman training activities in the Hoosier state.

This series is a manual on the subject of foreman training, and as such is replete with valuable suggestions for the installation of a foreman training course in the paper industry.

Part Four contains seven chapters, of which the one herewith is the first. "Foreman Training Facilities in Ohio" will appear in the next issue.

The author of this series is available to answer any inquiries regarding any phase of foreman training on which the reader might wish to be enlightened.

1,680 Foremen Trained

According to Professor Buxton, 1,680 foreman and department heads in Indiana have attended foreman instructors conferences arranged at various times by Indiana University and Purdue University between February, 1919 and March, 1924. Of this number 1,034 were reached by Indiana University, and 804 foremen by Purdue University. (79 are counted twice, making total 1,680),

"33,000 workers undoubtedly have been reached indirectly through this service," Professor Buxton estimates, "as each foreman, on the average, has handled at least 20 workers. Some foremen have trained several times that number since attending the University Conferences."

Professor Buxton further states that 82 factories have been reached with foremanship conferences by the combined work of the two universities in Indiana. "Of these," Professor Buxton says, "32 have been in individual units, that is, single factories in separate meetings and 50 other factories have been met in composite groups, that is, two or more factories making up each group."

In summing up the work of Professor Buxton's department, Mr. H. G. McComb, State Supervisor of Industrial Education in Indiana, informed the writer:

"We are employing one man—Mr. George F. Buxton, through a co-operative plan with Purdue University, to devote his entire time to training foremen.

In this type of training Mr. Buxton looks upon the foreman as an instructor and gives his training with the idea in mind that the foreman devotes a definite percentage of his time in breaking in or instructing any workman."

Foreman as Instructor

"For several years Indiana University carried on courses with factory foremen, emphasizing the discussion of problems having to do with the training of workers in industry," Professor Buxton told the writer recently. "Last September this work was transferred from Indiana to Purdue University with the same personnel that had been conducting the work. Both Indiana and Purdue Universities are State Universities and the work has been promoted as a public service in reaching indirectly the worker who receives his training within the plant. It is the policy of the University representative to reach industries of all kinds in all sections of the state."

"Plans are under way," Professor Buxton recently stated, "for an enlarged service to the industries and industrial workers of the state in the building up of a fuller industrial training program, providing a training for present-day factory occupations. The public schools may furnish a foundation training for certain recognized trades and in some locations they may give a specialized training or a few of these factory occupations. At present they are reaching but a small percentage of those actually entering the factories, so a large responsibility rests upon the factory itself for training its own employees. The state university can help promote better factory training."

For executives of paper products plants in Indiana, desiring to put on foreman training programs, there is the advantage of association with the activities of the Purdue University. In this way the plants can solve the problem of properly equipping factory executives for the organization and conduct of foremen's conferences and classes.

Many far-sighted executives in Indiana have lent their co-operation to the University in carrying on the work, with result that definite foreman training programs have been developed in many plants.

"In some factories," says Professor Buxton, "a superintendent or manager or educational director has taken the responsibility for conducting frequent foremen conferences, where teaching problems are discussed and successful and unsuccessful teaching experiences exchanged. This practice of holding weekly, bi-weekly, or monthly conferences is becoming more common in Indiana factories, and where such conferences are held, the training program usually gets its proper consideration."

As a result of the foremen training developed in the state, Professor Buxton points out, the foremen have not only developed into better teachers of green workers, but they have come to better understand the manner of dealing with workers on the job, or better interpreting the plant policies, and securing the workers' interests in the plant and the work.

One result of the instituting of foreman training in plants, he says, has been a reduction in labor turnover.

How Conference Conducted

For the sake of brevity, let us outline the methods of organizing the foremen's conferences conducted by Professor Buxton's department. The conferences are held in co-operation with local directors of vocational education, and arrangements for such conferences are made as follows:

1—A series of meetings—usually six to ten.

2—To be held once a week, morning, afternoon or evening.

3—Each meeting ordinarily to be an hour and a half long.

4—Meeting place—in the factory, public schools, public libraries, chamber of commerce, or at a club house.

5—Arrangements sometimes made for a meal to be served in connection with the meeting, at the expense of the plant.

6—The factory usually selecting the men who are to attend the meetings. Sometimes it is a matter of extending invitations to those interested.

7—Foremen make up the largest number of members of conference groups, but some of these groups include only assistant foremen, and some include heads of various departments.

8—Numbers attending the meetings have varied from fifteen to eighty, according to the size of the plant. In some cases handled by Indiana University, the larger numbers were divided into two or more groups.

9—Composite groups organized where smaller plants may be handled, in addition to or in place of large individual plant groups in a given city.

10—In some cases, single meetings conducted where it is not possible to arrange for a series of meetings.

11—Follow up meetings, from one to six, conducted with plants previously served.

12—Visits to men in their departments, with individual conferences and coaching.

13—Demonstration teaching, handled by foremen and observed by other foremen.

14—Letters to factory managers and superintendents calling their attention to further matters of importance in the training of factory workers, in addition to matters brought out in conferences, sometimes mentioning suggestive magazine articles.

15—Making suggestions at the conclusion of a series of meetings for the building up of a better training scheme within the department.

Foreman Training Policies

In introducing the training in each industry, the University bears a number of policies in mind, which

must be carried out if the work is to be regarded as successful.

The following is a statement of policies adopted in introducing the work into new communities and into new industries:

1—Include each geographical section of the state as far as its industries warrant.

2—Include the larger industries first where conditions make this possible.

3—Include some of the smaller industries by means of composite groups from several plants.

4—Include varied industries, in order that the public may realize that every legitimate type of manufacture is covered in Purdue's plans.

5—Include highly specialized plants and general jobbing shops. Consider the needs of training for the simple operations and also for the recognized trades.

6—Include building trades and service trades as well as manufacturing trades where demanded.

7—Concentrate service in one section of the state as far as possible, to save time and expense in travel.

8—Deal with employee organizations and employer organizations as well as with individual plant managers.

9—Co-operate with local public school officers and with local and state organizations interested in promoting the industrial efficiency of workers.

10—Encourage and try to meet requests for Purdue service, and also solicit an opportunity to introduce the work in places unfamiliar with the offering.

11—Explain to all interested parties, Purdue's basic public interest in promoting in an effective way a well thought out training scheme for preparing workers for industrial occupations. Show how its interest is as strong as that of the factory management itself. Tell of its backing by means of state and federal funds.

12—Issue from time to time explanatory printed circulars to distribute to manufacturers in Indiana to inform them as to this phase of Purdue's contribution to the state's industries.

Reaching the Small Plant

It will be noted, after a careful reading of this statement of training policies, that the foreman training system, as organized in Indiana, is intended to reach the small plant as well as the large plant. Then too, it is prepared to reach the plant located in an out-of-the-way section. The state feels that its foreman training program will not be complete until industry, whether small or large, is well served.

According to the latest statement by Professor Buxton, the state training service has served no less than thirty-one distinct industries within the state. Many of the plants in these industries employed but a few foremen, but it was possible to arrange foremen's conferences for these foremen by grouping them with foremen from other small plants. Thus, a group composed of foremen from several paper products plants, called a composite group, would be a logical combination, for every member in that group would have a common trade interest, and the subject matter developed by the conference would have a common appeal.

Scope of Conferences

"The usual practice in conducting the factory conferences," says Professor Buxton, "is to outline a general topic for the meeting and build up the points which may apply to local training problems, illustrating them by means of charts and blackboard sketches. Mimeographed notes, covering the general topic and points prepared for discussion, are passed out to the men during the meeting. General comment by the various members of the group makes up an important part of the program. Members of the group bring up their own training difficulties for discussions. Some of these are considered during the meeting, and others are reserved for private conference later in the special production department."

The scope covered in discussions is indicated by the following list of topics prepared by Professor Buxton:

1—The foreman as a teacher.
2—What to teach in the factory.
3—Planning suitable units of instruction.
4—How workers learn and develop skill.
5—Importance of studying habit formation.
6—Maintaining interest in industrial work.
7—Developing fairness, effort, carefulness.
8—Ways of giving shop information.
9—The use of questions in factory teaching.
10—Effectiveness of typed instruction sheets.
11—Varied teaching tricks and devices.
12—Difficulties the shop teacher must meet.
13—Principles of teaching for the foreman.
14—Standardizing teaching methods in industry.
15—Measuring the effectiveness of shop teaching.

"In some cases," says Professor Buxton, "one of the above topics is considered during two or more meetings. In other cases two or more topics are covered in a single meeting. Other topics than the above are discussed where conditions suggest the desirability. These are sometimes proposed by the men themselves. Studies less closely related to the training of workers have been given incidental consideration. These include:

1—Fatigue problems to be considered in teaching.
2—Fitting the worker to the right job.
3—Selling overhead cost to the worker.
4—Safety first as a part of the teaching.
5—Evaluation of the foreman's responsibilities.
6—Necessity for understanding present day manufacturing.
7—Teaching, inspiring, leading, driving.
8—Holding down instruction costs."

Pointers for the Engineer

By W. F. SCHAPHORST, M. E.

U. S. Will Adopt Metric

THERE is no question in this writer's mind but that the United States will some day adopt the metric system. The handwriting is on the wall. Every country of any importance in the world has already accepted it—all but the United States and Great Britain.

The transition period from our present standard to metric will no doubt cause much expense and inconvenience, but the sooner we jump in and have it over with, the better.

It is not commonly known that the famous James Watt, an English engineer and scientist, originated the decimal system of measurement. I have always considered it of French or German origin myself, but that is not so. Nor is it well known that our present English system is of German origin. We therefore have this interesting situation: The English speaking people clinging to a German invention, which even the Germans themselves have dropped, and the balance of the world using an English invention.

The simplest way that I know, to remember the relation between all of the units in the two systems, is the following:

Length—one yard plus 10% = one meter
Weight—two pounds plus 10% = one kilogram
Volume—one quart plus 5% = one liter

Concentrate on this little, easily-remembered table for a few minutes. You add 10 per cent in each case excepting "liquid measure," and there you add 5 per cent. Associate "liquid" with the old prewar beer at 5c per glass and you'll never forget it. The 5 per cent, you see, applies only to "liquid" measure. Easy, isn't it?

Should Chimneys Be Painted?

NOT long ago I saw a beautiful white chimney. It was a new chimney, built of reinforced concrete. The cost of painting, I was informed, was close to $100.

Within a month after the painting some ugly black crooked streaks appeared all around, beginning at the top and terminating about half way down. Whether these streaks were caused by steam from the soot blowers, from exhaust, from blow off, or from soot accumulating at the top and then washed down by rain, I do not know. Anyway, the streaks are THERE, and the chimney no longer looks like a work of art. Its beauty was of short duration.

My contention is that it is a waste of money to paint a concrete factory chimney. Concrete doesn't need paint and besides paint doesn't improve the appearance of concrete. Who ever saw a concrete dam, pavement, retaining wall, sidewalk, or breakwater painted?

Neither does a brick or tile chimney need paint.

Steel chimneys should be painted to retard corrosion. Concrete, brick and tiling do not corrode.

It is often good business to paint the firm name on a concrete, tile, or brick chimney for advertising reasons, but as a preservative, paint isn't necessary, and as a beautifier it seldom beautifies.

Watching the Coal Pile

AN INGENIOUS arrangement for weighing coal was recently developed by a prominent mechanical engineer for a large and well known paper company. It is semi-automatic in operation. A wheelbarrow is placed on the scales and is loaded by hand with scoop shovels. As soon as the load of coal is "standard" in weight, two lights, easily seen by the shoveler, are lighted simultaneously. Each load, therefore, contains a definitely known amount of coal. At the same time a recording instrument in the engine room registers each standard load.

There is an obvious advantage in knowing the exact amount of fuel being burned under all conditions of load. It is an excellent way in which to keep a continual check on efficiency and economy.

Special vs. Stock Belting

A PROMINENT manufacturer of leather belts points out reasons why it is better to buy stock leather belts than to buy leather belts that are made to order.

He states that it is well to allow leather to season before being made into stock so that the moisture content will be just right and so that the leather will have an opportunity to "set." In the stretching process, the leather fibres are more or less distorted and they naturally must adjust themselves during the seasoning process.

It is obvious, therefore, that if new hides are purchased for the making of a special belt, stretched, and then made into belting, within a short period of time, the belt may not be properly seasoned and the chances are that it will not give as good results as would a "stock" belt.

It is also pointed out that when an order is received for a belt to be specially made, the manufacturer is "certain" that he has made the sale which may lead to a bit of carelessness in mixing seasoned hides with hides that are not seasoned, etc.—anything to turn out the belt in a short time and get the money. On the other hand, when making belting to

be placed in stock, the workmen are not hurried, and the inspector has more time to look over and test the work. In fact, all of the points indicate that the stock made belt is liable to be better.

Monel Metal Valves

IN IMPORTANT power stations, it is now becoming the custom to specify monel metal for valve seats, discs, stems, on gate valves, high-pressure globe valves, etc., where the temperature is 650 degrees Fahr. or higher and where the pressure is 250 lbs. or higher. Monel metal is superior to steel in resisting the erosion and wire-cutting of superheated steam. It also resists salt water and acid water very well. The long list of acids that do not affect monel metal is surprising. In fact, it is claimed to be more generally resistant to chemical corrosion than any other commercial alloy on the market today. Although the first cost of monel metal parts is usually higher than without that metal, it will doubtless prove to be well worth while in the minimization of shutdowns and replacements. Monel metal is a nickel copper alloy of high nickel content, and is said to contain only 1½ per cent of iron. Its tensile strength varies from 80,000 to 150,000 lbs. per sq. in., depending on the temperature. Even at a temperature as high as 1,000 degrees Fahr., its strength is 50,000 lbs. per sq. in.

To Make Hole Through Glass

INASMUCH as very few mechanics know how to bore a hole through glass, and since paper mill engineers sometimes may have that job to do, I will give the following method:

Use a hollow copper or brass tube of the size of hole desired. Or, turn down a brass or copper rod, making it hollow and tube-like in shape, of the desired diameter. If the brass is hard, anneal it by heating and plunging in water.

File small teeth in the end, making them look like saw teeth. These are necessary for holding the abrasive material. Of course, copper teeth cannot cut glass.

Place the tube in a vertical drill press and carefully rest the glass on a soft pad of paper, leather, or felt, etc.

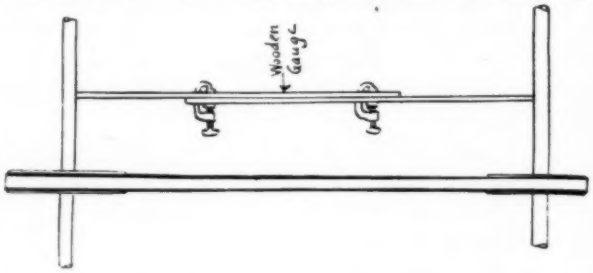
Do not attempt to do the work quickly. Be very gentle and painstaking about it. It takes about a half hour to drill through a pane of glass one-eighth inch thick.

Use three parts of turpentine and part of ether as a lubricant. If no ether is available, turpentine may be used alone, but the combination is better.

Run the drill at a speed of 15 to 30 R.P.M.—very slowly and without much pressure. Be very patient. Do not hurry.

Handy Shaft Aligning Kink

AN EXCELLENT and inexpensive home-made gauge for aligning shafting is shown in the accompanying sketch. The gauge consists of two pieces of light, slender, stiff, wooden pieces, and two clamps. With a gauge like this, clamped to the correct length, it is a very simple matter to check up



two shafts and learn whether or not they are parallel. If they need aligning, the gauge will touch only at the points of minimum distance. Thus, if the shafts are not parallel, the distance between them will not be the same along the entire length, but if the shafts ARE parallel, the gauge will "just touch" at both ends at every place of measurement.

A wooden gauge of this kind is far superior to a cord because it does not stretch or shorten. It is handled with greater ease and certainty. It is even better than a steel tape.

In most any plant where much shafting is used, it is worth while to make a gauge of this kind to keep on hand for use as a permanent tool. Fitted with a tongue and groove joint, the two pieces are adjusted more quickly than without such a joint. However, two plain sticks without the grooved joint will serve the purpose very well in an emergency.

Keep Baffles Tight

ONE subject that is seldom touched upon in connection with boiler management is the baffle wall. A baffle seems to be a very simple part of a boiler setting and therefore worthy of but little thought, but that is not the case. Baffles should be correctly designed, correctly placed in the boiler tubes, and they should be leakless. Tests have proved that they cannot be placed haphazard here and there. The volume of the hottest gases usually determines the position of the first baffle encountered. Then, as the gases reduce in volume, due to coming in contact with the tubes and giving off heat, it is clear that the second baffle must be placed that there will be no reduction in gas velocity. And so on. As the gas moves from pass to pass, the baffles are placed closer and closer together.

If the baffles leak because of loose or careless construction, the hot gases will short cut through the baffle and escape up the chimney without giving off the full amount of heat. The chimney gases will be

too hot. Holes in baffles should be stopped up with plastic fire brick. Or, where the baffle is in a tumble-down condition, it might be well to replace the entire baffle with a new leakless monolithic baffle of this plastic composition.

Preheated Air Effects Fuel Economies

HEATING of the air supplied to the furnaces by utilizing for this purpose the heat of the flue gases, makes it possible for the ordinary industrial establishment to effect important savings in its fuel bill, Mr. Joseph G. Worker, of the American Engineering Company, of Philadelphia, pointed out in an address at the recent convention in that city of the Association of Iron and Steel Electrical Engineers.

The applicability of the method is not confined to the big central stations of the electrical industry, Mr. Worker said, but on the contrary the greatest gain in proportion to cost of equipment is found in simple installations that provide a moderate degree of heating of the combustion air.

The efficiency of a modern underfeed stoker using preheated air was compared with the performance of the same stoker supplied with cold air, the result of tests with the two types of installation being plotted in curves presented by Mr. Worker. It will be noted from these curves that 90 per cent efficiency is attained at 200 per cent without preheated air.

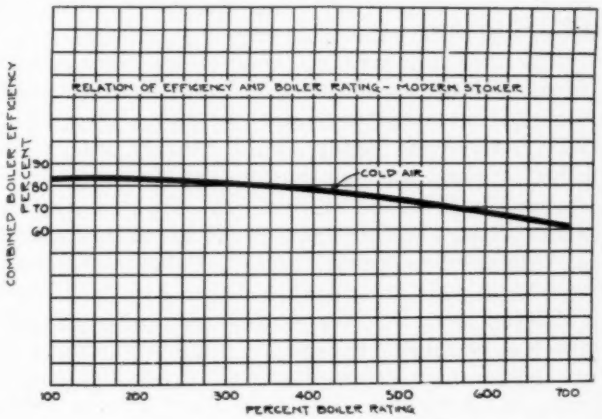
Mr. Worker stated that with preheated air, the modern stoker can be operated at 500 per cent of boiler rating continuously and can handle peaks of short duration up to 700 per cent of rating. The CO_2 performance with preheated air will range from 15.5 per cent at 250 per cent of boiler rating to 16.5 per cent at 350 percent rating and above. Combustible loss in the refuse can be kept as low as 0.35 of 1 per cent of the B.T.U.'s in the coal, or 4.5 per cent combustible in the refuse.

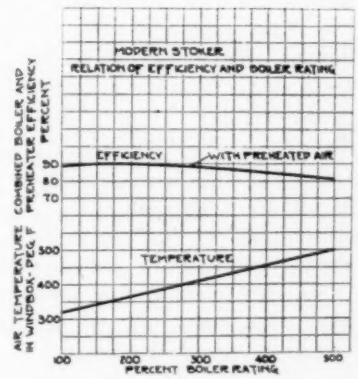
It will be seen that the saving through the use of preheated air consists not alone in trapping and returning to the furnace a certain number of the B.T.U.'s that otherwise would escape up the stack, but that even more important economies result from the better combustion of the coal in the stoker fuel bed, with a definite saving of fuel.

Discussing the adaptability of preheated air for the ordinary industrial power plant, Mr. Worker said in part:

"There is a certain amount of waste heat from flue gases that can be obtained at a low cost. If we preheat the air for combustion purposes 100° F., this preheat can be obtained without much additional expense for handling the hotter gases and the cost of the preheated air equipment will be small. The first 100° F. of preheated air is, without question, the most effective and the least expensive.

"Care must be taken in the consideration of each individual situation to determine whether or not high preheated air will pay for itself. Some engineers are of the opinion that you should obtain as high a temperature of the gases to be used for combustion as possible. The point that it is desired to emphasize here, however, is that even though a particular situation might not warrant very high heating of the combustion air, it does not follow that low temperature preheating will not pay and be very ef-





These curves show how preheated air affects boiler-furnace efficiency, one curve showing efficiencies at various ratings with cold air supplied to the furnace and the other indicating results with various degrees of preheat

fective for combustion purposes. A large number of boiler plants in the United States are already using effectively low preheated air and, considering the cost to obtain this, they no doubt are showing overall results that warrant the installations."

Mr. Worker explained that the underfeed stoker has kept pace with developments in the use of preheated air and that provision has been made for insulating and sealing the elements of the stoker exposed to high temperatures so that the front of the stoker is cool and the heat does not escape into the boiler room. All stoker parts are designed to stand the highest degree of preheat and installations using air at 500° F. to 600° F. are operating successfully.

Preheating the air, Mr. Worker said, makes it easier to entirely avoid smoke in burning coal that is liable to smoke when burned in the ordinary way.

And the Steam Traps Were the Goat

By L. D. GOFF
Armstrong Machine Works

WITHOUT a doubt steam traps have, in the past, been the cause of many trials and tribulations deserved to be classified among the necessary nuisances used in connections with the application of steam to heating and power purposes. Occasionally, however, there are cases where the steam trap has been unjustly blamed for troubles because of the absence of any other reason to account for the trouble.

The improper application of steam traps oftentimes results in inefficiency and occasionally in real trouble. It is not uncommon to find a trap fitted with a valve for high pressure service installed on a low pressure line and the trap condemned because of not having sufficient capacity. The majority of steam traps use different size orifices in the valves and different pressures, a small orifice being used for high pressures as the trap does not have sufficient power to open a large valve against the high pressure. The capacity of the trap when furnished for high pressure service is, possibly, somewhat less than the same trap fitted for low pressure though not in proportion to the difference in the size of the orifice as a greater quantity of condensate will be discharged through the smaller orifice used. The capacity varies as the square root of the pressure.

To get the greatest efficiency, so far as capacity is concerned in a steam trap, it is necessary to have the orifice in the valve of proper size for the pressure and several steam trap manufacturers furnish quite a range of orifices in order that the user may get the greatest possible capacity. To more clearly explain this point, we will say that the engineer has a service which he wishes to drain with a steam trap and on which 100 pounds pressure is carried. A manufacturer furnishes a trap to operate on pressures from 30 to 150 pounds; in most cases this trap must be equipped with an orifice sufficiently small that the mechanism has sufficient power to open the valve against pressure at 150 pounds. Naturally at lower pressures this trap will not have as great a capacity as at the maximum pressure—it is merely a case of not being able to get as much water through a given hole at 50 pounds pressure as at 150 pounds. The engineer finds that the particular trap selected does not have sufficient capacity to handle the service, its capacity at 100 pounds is much less than at 150 pounds. It is then necessary to purchase the next larger trap. This can be avoided if it is possible to obtain a valve with a larger orifice for the trap selected which would give the greater capacity at 150 pounds.

Another trouble experienced is an occasional case where a low pressure trap is installed on high pressure service, the trap will not open the valve because of insufficient power. This is no fault of the trap but a fault of the application and in the majority of the cases this trap may be adapted for high pressure service by installing a valve seat having an orifice suitable for the higher pressure.

However, steam traps are not always responsible for troubles that are blamed on them—though it is of course perfectly reasonable to suspect the trap—but if the engineer is really interested in overcoming the difficulty he should not be content with merely suspecting that the trap is the cause of the trouble but prove it, he should not be content until he has found the actual cause of the trouble and, if possible, eliminated it.

The Unexpected Cause

One of the problems in the operation of a paper mill is the efficient drainage of paper machine dryers, by efficiency we mean keeping the dryers free of air and water without the waste of steam. It is perfectly easy to keep a dryer free of air and water—merely let the steam blow out through the dryer to the atmosphere—but the waste is tremendous and it is the methods used to prevent this waste that frequently reduce the efficiency of the dryers which in turn slows up production.

An example of making a steam trap the goat for troubles being experienced, is clearly illustrated in a recent case where the manufacturer was called on to give service in connection with traps he had furnished for service in draining paper machine dryers, each dryer being equipped with a trap. The trouble was the erratic performance of a regulating valve used in controlling the steam supply to the paper machine. This device regulated the supply of steam through the use of a roller riding on the sheet as it passed from one dryer to the other, this roller operating a valve by means of a lever on which the roller is pivoted. If the sheet of paper passing between the dryers is wet, it will sag and the roller will follow the sag and through the lever open the valve supplying more steam to the dryer to raise the temperature and more thoroughly dry the paper. As the paper becomes more dry, the sag will be eliminated and the roller raises accordingly closing the steam.

It was the erratic performance of this regulator that was causing the trouble and in the absence of any other reason for this, the steam traps were blamed. The findings of the engineer sent by the manufacturer of the traps to give service were a

revelation. After a careful observation it was noted that the jumping of the roller was periodical. It might here be explained that this roller should travel smoothly and merely raise and lower as the condition of the paper varied, but in this particular case it was jumping up and down and supposedly varying the steam supply accordingly. About every so often the roller would dance excessively and in hunting for the cause of this periodical erratic action, it was finally found that the dryer felt used on this machine was seamed, it had been removed from another machine and shortened, then the ends fastened together with a rather crude seam. Every time this seam passed under the roller it would cause the roller to jump. It was not the jumping of the roller that was particularly serious but the travel of the paper going through the machine was irregular even to the point where it was liable to be broken.

An imaginary trouble was the irregular feeding of the steam to the dryers because of the jumping of the regulator which normally would have been the case but a test of the pressure did not disclose this varying pressure and here was another trouble to account for. On examining the regulator it was found that, in some inconceivable way, waste had gotten into the valve and clogged it so that it was in no way affecting the flow of steam to the dryers other than restricting the flow.

Here then was a case where the steam traps were apparently responsible for all the trouble as they seemed to cause the regulator to dance up and down, this causing the uneven travel of the paper through the machine because of the varying steam pressure. After the trouble was finally located and eliminated —and incidentally, the regulator disconnected inasmuch as it was found that because of it being possible to carry uniform pressures on the dryers, regulation was unnecessary—the operation of the machine was again uniform and normal and the steam traps were functioning beautifully as they had been all the time they were supposed to have been causing all of this trouble.

There are many similar cases where the trouble is really mysterious and the engineer in charge is not always able to put his finger on the cause of the trouble. Therefore, he is perfectly justified in asking for service on all appliances concerned. The manufacturers of such appliances usually are glad to give such service and usually do not begrudge the time and expense involved in helping the engineer though their particular apparatus which is in no way at fault.

The Bleaching of Paper Making Pulps Under Pressure

MAX E. BOEHM

Interlake Mills, Consolidated Water Power and Paper Co., Appleton, Wis.

IN BLEACHING sulphite stock, the usual practice has been to bleach at a consistency of about 4 per cent, very seldom over 5 per cent, the bleaching operation requiring from four to six hours, even after steaming the pulp to a temperature of 105 degrees Fahrenheit or higher. The amount of power which it has taken to agitate the mass has been considerable in addition to the steam that has been required for heating.

During the last six or seven years, paper makers have appreciated the necessity of some method of bleaching that will handle stock at a high consistency in a shorter period of time. I know by laboratory experiments that pulp bleached at 12 to 30 per cent took less chlorine, bleached quicker and gave a whiter and firmer pulp. Also my experiments have proven that at the above consistency, pulp can be bleached cold in considerably less time than is now consumed in handling the 4 to 6 per cent stock under present methods.

There are high consistency bleachers on the market of the worm or screw type, which likewise proves that pulp bleached at a consistency of 12 to 30 per cent is much whiter, cleaner and firmer, at, of course, a saving in chlorine and time over the old method of bleaching at 4 to 6 per cent.

In the last few years I have had an opportunity to become familiar with the bleaching of sulphite pulp cold in closed rotating bleaching vessels on a productive basis, and the results that have been obtained are so highly satisfactory that at the present time, four mills are bleaching sulphite pulp in an hour at approximately 70 degrees Fahrenheit, using steam only when the pulp gets down to 35 degrees in the coldest weather.

In handling a 4,000 to 5,000-pound batch, only six to eight horse power is required. One of the mills using these retorts reports that a fair color is obtained in forty minutes when bleaching warm. By bleaching warm I mean from 24 to 26 degrees C. Pulp has been bleached to a snow white with an initial temperature of 40 degrees Fahrenheit, this, of course, being made possible by the closed retort and a perfect system of agitation and no doubt a slight pressure due to chemical action.

Bleaching at a yet higher pressure would be an interesting procedure.

There is no question but what improved methods of bleaching would be of special interest to sulphate mills that are just beginning to produce bleached sulphate.

Considering the saving not only in the cost of operation but the initial investment as well, I am certain that there is a bright future ahead for the Biggs Improved Bleaching Engine manufactured by The Biggs Boiler Works Company, Akron, Ohio.

Editorial Comment

By WILLIAM SIBLEY

Vision—Prime Essential for 1926

INTROSPECTION calls forth retrospection. Without the prespective provided by yesterday we cannot properly view tomorrow. It is not only fitting but necessary therefore, that we take into consideration past events before discussing present indications. This, however, can be done in one statement: **engineering and science have assumed control.** In that statement is wrapped all the development of the past fifty years. In it will be found deeper-going and farther-reaching effects than can be found in any other statement relating to commercial affairs. Science and engineering have taken command—with the result that we are entering upon an era of industrial expansion and activity without parallel in history. This contention is supported by evidence on every hand. Never have we had so much on the constructive side of the ledger to contribute to optimism. So true is this that the manufacturer, wholesaler, or retailer who does not make money during 1926 will have only himself to blame.

Let no one believe, however, that the business prosperity that is most certainly here to stay will bestow its fruits upon everyone wishing for endowment. As never before, hard work and vision are prime essentials to profit. Because science and engineering are now in the saddle, we are moving with great rapidity. The trend of today is toward simplification and unity. There is no longer a "backwoods section" of the United States. Few, anywhere. The world is getting acquainted with itself. An important discovery or a vital message is known the world over twelve hours after delivery. Discussion of world events, at the time they happen, is now commonplace.

Outside the field of communication we find all industry moving with a speed heretofore unknown. While it took hundreds of years to progress from the stage coach to the steam railroad, it took but twenty years to develop the automobile. Eighty years were spent in the development of the telephone; four years, the radio. In fifteen years we not only learned how but adopted the methods whereby we could extract indigo from coal, and thus almost wipe out of existence an industry that had flourished in India for a hundred years. The development of rayon has thrown thousands of Japanese silk workers out of employment—and imposed a tremendous production burden on our own textile and paper industries, all in ten years.

Had railroad executives possessed the vision of Haynes and Ford twenty-five years ago, they would have built concrete roads along their right-of-ways, paid for them through tolls, and thus capitalized their competitor, the automobile; at the same time obviating the necessity for state governments to expend enormous sums for highways which must be met with taxes. The phonograph folks lost millions in reduced machine and record sales before they learned the wisdom of recognizing and co-operating with their competitor, radio. Electricity has outstripped manufactured gas as a utility largely because the gas men have kept their eyes glued to the kitchen range, to the exclusion of the larger opportunities in house heating and industrial usage. Criticism and protest from street-car companies failed to obviate the necessity for either serious competition or straight-forward co-operation with the motor bus. Not ten per cent of the wood furniture manufacturers were prepared to meet the competition of steel. We move rapidly now-a-days, and the end is not yet. Hence the need of vision.

It is a trait of human nature to unsuccessfully visual coming changes. We are all too prone to view tomorrow by what we know and do today. Our foresight is never as good as our hind-sight, and too often we believe that by guiding our steps by past experience we are performing wisely. The characteristics in human nature that makes us reluctant to accept anything that may disrupt the even tenor of our ways has cost us incalculable commercial progress and uncounted years in development. In spite of all the lessons of both ancient and modern history, we are wont to live and think in terms of the present. Tomorrow, for most of us, is a negative quantity, and we therefore just sit tight and take our chances. With emergencies arising as rapidly as they are today, this is dangerous practice.

There is no lack of evidence of the value of vision. Proof of the dollars and cents reaction from the exercise of foresight is on every hand. Mr. Hill believed in that barren expanse lying west of the Red River of the North—and he built the Great Northern Railroad. The Astors and the Vanderbilts invested in Manhattan property long before the average man could dream of the extension of New York City. At that time these men started they had no more money than we. Just greater foresight—and an absence of the reluctance to take the necessary steps. The American Telephone and Telegraph Company even now have cables stretched across the continent sufficiently large to care for increased population and demand for the next fifty years. They realize the truth that wages are not going to come down—that building material prices will sink but slightly if at all—that what is built today will have increased value tomorrow. When radio flared into popularity, that company lost no time in securing for itself a dominating position in its development. Because of this quick action and exercised vision they are now so great a factor in the radio industry that they are in a position to largely shape the course of its development. No stone is left unturned in their search for inventions that may have even a remote influence on their business. They appreciate the fact that all industries are constantly becoming more and

—— on Timely Subjects

more closely related—that a development in the manufacture of one product may seriously affect a totally different product.

If we are to look ahead with vision—that we may look backward with pride—we must recognize what has gone before, alter our present position accordingly, then keep in touch with the trend of the times. One cannot contemplate the increases in population, the changes in commercial activity, or the tremendously augmented demand for all commodities, without realizing that with them must come added responsibilities and the development of far-reaching improvements.

At no time in history has there been greater need for the exercise of foresight with respect to coming changes. People who are self-sufficient, who do not keep abreast of the times because of the delusion that they have the world by the tail, will likely find themselves occupying an exceedingly precarious position in the early tomorrow. Never before has it been so necessary to maintain vigilance over what is going on in the fields of science and research. Political intrigue, racial misunderstandings, and unsound national ambitions cannot continue against the forces of engineering and science. In the past those evil factors had only ignorance and human selfishness to combat—with the result that they frequently crystallized into wars. The single invention of radio will do more for the cause of universal peace than all the Leagues of Nations, World Courts, Hague Tribunals and conferences that ever have been or ever will be. "Glorious isolation" is a thing of the past—and not only in political and national circles but in business. Through engineering and science there has been developed a bond of direct relationship between every industry—between every enterprise.

In the past, developments of far-reaching importance came about slowly enough to permit of easy adjustment. Today they rise with startling rapidity, and unless we keep abreast of the trend we will be forced into the positions afforded followers. "Where there is no vision people perish" contains more truth today than when written. Vision—is the prime essential for 1926.

Is This True in America?

WHEN a woman is talking to another woman over the telephone, 26.4 per cent of the conversation is idle; when a woman calls a man, the waste is 13.8 per cent. When a man calls a man, 10.6 per cent of the talk is non-essential; and when a man calls a woman, the idle talk is 9.7 per cent. These statistics were gathered by the telephone bureau of Tokio.

Consensus of Opinion

HERE in brief is what the country's leading economists think of prevailing and future business conditions:

Babson:

While the trend of new building slumped off during the last two months, the general volume of business should show continued improvement. Next Spring, however, should bring an unusually high strike record. For the present, commodity prices should continue in a generally strong position.

Alexander Hamilton:

General business should show a slight but steady increase during the ensuing six months. Domestic trade has been increasing steadily and can be expected to continue in the same trend for several months. Building material prices should show continued strength for at least the first quarter.

Brookmire:

Fundamental business conditions remain favorable and may be expected to continue at the high rate of activity throughout the ensuing months. Farmer's income in many states will be higher than last year's and this will contribute to a continuance of the present high level of domestic buying, which should hold firm, or even slightly increase, commodity prices.

Bankers-Economic:

Everything points to a substantial and healthy period of prosperity, but not of boom proportions, and without commodity inflation. Employment in general is satisfactory and promises to improve during the next few months. Secretary Mellon's tax plan, the Locarno conference, and Italy's and France's attitude are contributing factors to general improvement.

Gibson:

A gradual, healthy, seasonal growth in general business is indicated, but with an absence of booms. The increased iron and steel production appear to be but normal and would serve as a fair barometer. The railroads expect the year 1926 to be the best year in their history.

Harvard:

Consumption and production may be expected to adjust themselves to each other; the outlook for the coming few months being for a continuance of the substantial volume of business. The autumn expansion in manufacturing operations now seems justified.

Moody:

Political conservatism is one of the pillars of strength under the present condition, and is one of the things that indicates a continuance of the present healthy volume of business. We were in a constructive period during the past few months and the economic indicia have not turned bearish.

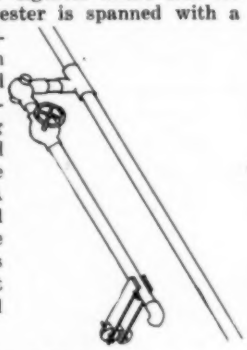
Practical Helps for the Mill Man

Maintaining a Supply of Spare Parts

THE following simple yet very effective system is used in connection with the replacing of spare parts. A minimum stock for each part is determined and tags are placed on this number of parts. Tagged parts are never given out when there are untagged parts. It is the duty of the repair man who does draw a tagged part to take the tag to the repair department office before the part is installed. The tag shows the name and use of the part, the number of the drawing, pattern, casting and other useful information. Its receipt in the repair office causes orders for a new supply to be issued at once. The tag itself is placed on a board where the progress of the order is shown by divisions into which the board is divided. When the new supply of parts is received, the tag goes back on one of them and they are all put back in the storeroom.

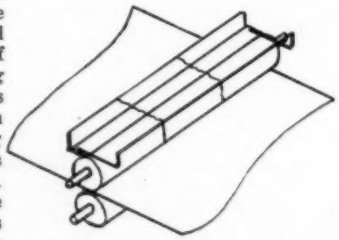
Acid Feed Device

IN ONE mill the space between the acid line running along the wall of the rotary room or digester house and the mouth of the rotary boiler or digester is spanned with a swinging arm made of the same acid-resisting pipe as is used in the main line. The cooking liquor is supplied from a central tank. A joint is provided in the arm so that it will swing through a full arc of one hundred and eighty degrees. A cut-off valve is located close to the main line. A simple support on wheels is provided for the free end. The device may be so located as to supply two digesters or rotaries with cooking acid and it can be moved back against the wall out of the way when out of use.



An Old Trick of Real Value

ONE of the best managed mills on the North American continent and one famous for high efficiency and low sulphite consumption is using the string device on the presses. This is an old-time affair which has gone into disuse somewhat, but it is offered here as it may be one of the factors which is giving that particular mill its leadership. Flat cotton string is used, one string near the front of the press and one near the back. When a break occurs, the web of paper only tears as far as the string. By drawing the string across the part where the web is interrupted, the full web is restored on the machine, the unbroken part leading the full width over the dryers and through the calenders.

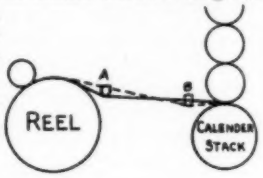


Practical Operating Test for Color Mixtures

A VERY practical operating test for color mixtures is in use in one mill. A tank of a capacity of about one hundred pounds of dry stock is placed near the machine screens. Proper proportions of stock and color for an approaching order are placed in the tank and thoroughly mixed. The test is made with some board which has a natural color bottom liner, for instance, and the tankful when ready is dumped into the bottom liner screen. The color then appears in the bottom liner and is formed dried in the regular way. The product which comes off at the dry end of the machine gives a test of the formula used for the color that is much superior to the making of little cakes and baking them on the dryers. The sample is made under actual operating conditions.

Correct Position for Spreader Bar

WRINKLING in winding or reeling may be the result of a misplaced spreader bar. The sketch shows a diagram of the draw from a calender to a Pope reel. The dotted lines show the wrong position of the spreader bar. The solid lines show where it should be. Put the spreader bar close to the roll toward which the paper is running.

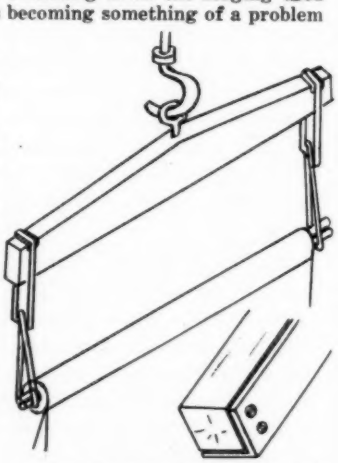


Spring Rolls on Dryers

IN MILLS where there is no dryer felt on the dryers, lost time is avoided by arranging the spring roll to run tight against the last dryer. When the paper or board breaks back of the calenders, this roll prevents the sheet from slackening back on the dryers. Sometimes this is effected by a roll on the top of the second or third dryer in the top tier. Frequently another similar roll is located further down the dryers to catch a break in the middle of the dryers.

Easy Method of Handling Wire

HANDLING the wire in threading it on the forging used to lift the couch roll is becoming something of a problem in mills where the wire is very wide. An "equalizer," as shown in the illustration, may be employed to advantage. The equalizer is hung on one hook of a machine room crane and ropes are passed over the poles on which the wire is rolled. The weight of the wire is thus taken care of, making it easy for two men—one at each end of the rolled wire—to control it.



Stiffening a Wooden Beam

WIDE paper machines make it necessary to use some means to stiffen the scantling used in sewing the dryer felt. One end and a few inches of a wooden four-by-four stiffened by an angle iron are shown in the accompanying sketch.

Protection Against Damage and Accidents

DAMAGE to machine clothing and machinery may be prevented by the practice of making the millwright put a sign on the starting lever or control buttons of machine sections when work is being done on those parts and is uncompleted. This is valuable at all times and should be enforced on the week-end repair day, as well as during the week when the machine is only shut down for a few minutes. It is also a safety precaution, especially where the repair man is working inside the felt or in the dryers or dryer gears.

Power and Engineering Show

Engineers, Builders and Plant Executives Throng in Great Numbers to the Fourth Exposition of Power and Mechanical Engineering

ALTHOUGH weather conditions were far from favorable to a large attendance, it was notable that engineers, mechanicians, plant superintendents and other experts attended in greater numbers the fourth exposition of Power and Mechanical Engineering, held at the Grand Central Palace, New York, November 30 to December 5, 1925, than any previous show of its kind. Under the management of Messrs. Roth and Payne the continuing series of expositions are improving all the time. There is such a close relation between power and the paper industry that one expected to meet a larger number of paper mill engineers and superintendents than was noticed at this exposition, though it is true that some of the larger companies like the International Paper Company, the Laurentide Company and the Oxford Paper Company were careful to see that the heads of their power and research departments were in evidence.

Engineers and other experts who have been visitors at these expositions from year to year are aware of the difficulty there is in keeping pace with the advances that are constantly being made in all lines of industry. One of the outstanding features of this exposition appeared to consist in efforts made to save power by conserving heat.

The largest exposition of its kind ever held, some of the exhibits were of immense size, the section of heating and ventilation being unusually complete, while the power process machinery and machinery used to bring about the economical combustion of fuel attracted almost equal attention by the magnitude of the exhibits. There was a very complete showing of steam boilers, as well as of prime movers—pumps, engines, etc. Last year there were no exhibits of prime movers of this kind, save a Diesel engine or two, but many novelties in this department of engineering were shown this year. Developments and progress in the field of mechanical devices have made it possible to get two and a half times more power out of coal than was the case ten years ago. The same progress was noted in hydraulic machinery, the developments of the past two or three years indicating that power can now be developed at two-thirds of the cost that formerly prevailed, all owing to refinements and improvements in apparatus, notwithstanding the higher costs of labor. There were 108 separate exhibitors of heating and ventilating apparatus, besides 141 contributory displays.

Some of the Exhibits

In the subjoined notes of exhibits, an attempt has been made to list those of greatest interest to pulp and paper manufacturers:

Alexander Brothers, Philadelphia, who are specialists in belting, showed a general line of transmission belting.

Allis-Chalmers Manufacturing Company, Milwaukee, had an exhibit of "Allis" texrope drive and ball bearing induction motors.

American Blower Company, Detroit, had "Sirocco" fans, blowers, and air-conditioning equipment on display.

American District Steam Company, North Tonawanda, N. Y., exhibited duplex sleeve expansion joint, types of underground steam line construction reducing valves, steam traps, steam flow and condensation meters.

American Chain Company, Bridgeport, Conn., attracted considerable attention with an interesting exhibit of chains for cranes, hoists and other uses.

American Pulley Company, Philadelphia, showed split-steel pulleys, pressed-steel shaft hangers and pressed-steel trucks.

American Schaeffer & Budenburg Corp., Brooklyn, had a most interesting and attractive display of indicating and recording gages and thermometers, pop safety and relief valves, calorimeter and dial thermometers.

B. C. Ames Company, Waltham, Mass., had an exhibit of particular interest to machine shop superintendents, consisting of bench, lathe, milling and filling machines, dial gages, etc.

Armstrong Manufacturing Company, Springfield, Ohio, showed the furnace grates for which the firm is held in high esteem.

Armstrong Machine Works, Three Rivers, Mich., exhibited sectional specimens of different kinds of high and low pressure steam traps. A trap modeled in glass was shown. This was connected with a small boiler to demonstrate the action of the trap and its ability to handle condensate and air from mixtures of steam and air.

E. B. Badger & Sons Company, Boston, exhibited joints and spray nozzles, some of which find appliciation in the pulp and paper industry.

Bethlehem Shipbuilding Corporation, Bethlehem, Pa., showed views and parts of apparatus of oil-burning equipment and boiler-feed pumps.

Bethlehem Steel Company, Bethlehem, Pa., had a coal pulverizing system on exhibition and distributed literature.

The Bigelow Company, New Haven, Conn., had representatives there to explain the operation of a coal pulverizer of which they are the manufacturers.

Boston Gear Works Sales Company, Norfolk Downs, Mass., had a booth in which attendants explained the speed-reduction units, silent chain drives and spur gears manufactured by the firm.

The Bristol Company, Waterbury, Conn., exhibited recording pressure and vacuum gages, electric temperature controls, indicating and recording thermometers and pyrometers.

Brown Instrument Company, Philadelphia, showed their electric CO_2 recorder combined with flue-gas temperature pyrometer, motor-operated damper control, pyrometers, two and three-pen recording thermometers and liquid-level indicator.

Brown Hoisting Machine Company, Cleveland, Ohio, illustrated their bridge cranes and conveyors and showed specimens of roller-bearing idlers.

The Crankless Engine Company of America showed a crankless engine operated on the Diesel principle—a 125 h.p. engine, with four cylinders, of length 9 ft., width 3 ft. 4 in., height 2 ft. 4 in., 500 r.p.m., weight, 80 lbs. per h.p. The main advantages claimed for this engine are simplicity of construction, lower cost, fewer moving parts and considerably less headroom than any standard type of oil engine. The engine has the appearance of a turbine rather than a reciprocating engine.

Combustion Engineering Corporation, New York, exhibited views of Lopulco and unit pulverized fuel systems and showed models and working parts. The products of the Combustion Engineering Corporation appear to range from the smallest grate to the largest-sized automatic stoker, besides pulverized fuel equipment, including the unit pulverizers and storage systems. At this exhibit the corporation featured fin furnaces, which are said to materially increase the boiler rating and eliminate furnace brickwork.

Bailey Meter Company, Cleveland, Ohio, showed the Bailey Meter control equipment in operation, as well as a section of the new Bailey furnace wall. The operation of the Bailey pulverized coal feeder and meter was demonstrated by a full-sized feeder.

Cochrane Corporation, Philadelphia, demonstrated a water softener, as well as recent developments in flow meters, combined with recording temperature and pressure gages in addi-

tion there were views of water softeners of the lime-soda hot process and zeolite types, as well as V-notch meters and recorders.

The DeLaval Steam Turbine Company, Trenton, N. J., repeated the exhibit which was shown at the exposition of Chemical Industries, a worm reduction gear operated by an air fan for demonstration purposes. The firm has brought out during the past year a complete line of speed reducing gears for use in connection with electric motors for driving slow and moderate speed machinery.

The DeLaval Separator Company, New York, N. Y., featured a lubricating oil purifier and transformer oil purifier of special interest to Diesel engine operators.

Julian D'Este Company, Boston, showed "Curtis" damper regulators reducing valves, traps and temperature regulators.

Edward Valve and Manufacturing Company, East Chicago, Ind., exhibited Edward valves, in the globe, angle, non-return, check, feed-line, stop and check, blow-off, and atmospheric relief lines. These are asserted to be practically indestructible.

Edge-Moor Iron Company, Edge Moor, Del., showed a single-pass boiler. This consists of two main sections, a closed circuit steaming section and a water heating section. The former comprises two sets of cylindrical headers and a cross drum with connecting tubes. This boiler, it is stated, can be operated at high ratings on natural draft without the use of an unusually high stack.

Charles Engelhard, Inc., New York, N. Y., had the usual display of electrical measuring instruments for temperatures and CO_2. An electrical resistance thermometer was shown in operation. The electric type of CO_2 recorder is said to be superior in sensitivity, accuracy and general dependability to absorption type mechanical orsats.

Erie City Iron Works, Erie, Pa., had an interesting series of views of their unit coal pulverizing system, an account of which was given in our report of the Chemical Exposition.

Clipper Belt Lacer Company, Grand Rapids, Mich., had a display of steel belt lacing and belt cutters in addition to the general line of belt hooks. A moving belt display showed belts running under all conditions. It was constructed of aluminum with moving parts running on ball bearings.

Flynn & Emrich, Baltimore, Md., displayed the "Huber" brand of mechânical stokers, type FM.

Foote Bros. Gear and Machine Company, Chicago, Ill., showed vertical worm and spur gear speed reducers and standard worm gear reduction units.

Frederick Iron & Steel Company, Frederick, Md., exhibited centrifugal pumps and rubber-bushed flexible couplings, which attracted an interested crowd of experts during the period of the exposition.

Hagen Corporation, Pittsburgh, Pa., demonstrated their combustion control apparatus and steam purifier. A working model of compensated draft control made the operation clear to all, while another model of the Hagen steam purifier showed how moisture and foreign matter can be removed from steam before it leaves the boiler.

Heine Boiler Company, 11 Broadway, New York, displayed a new seamless steel forged header for use in water tube steel boilers. The Heine S-type boiler is adapted to cross baffling, the setting and operation being similar to those of the MC type. The novel part is the header.

General Electric Company, Schenectady, N. Y., made an attractive display with motors and motor controls, surface air coolers and flow meters.

Homestead Valve Manufacturing Company, Inc., Homestead, Pa., showed a number of interesting devices, as quarter-turn valves, globe and blowoff valves. The Hovalco-Homestead Blow-off Combination for steam boilers is made of semi-steel, with monel metal seats and disks for pressures to 250 pounds. One of the most interesting exhibits was a lubricated valve in which a lubricant is introduced to the working parts of the valve by means of a pressure-lubricating system, while the valve is under pressure.

E. Keeler Company, Williamsport, Pa., had a model of an old-type boiler on exhibition as well as a model of the Keeler Double-Duty boiler of improved design, semi-self-contained. The firm also showed in operation a model of a horizontal return-tubular and water-tube boilers.

W. A. Jones Foundry & Machine Company, Chicago, had an interesting exhibit of spur gear speed reducers, designed for stepping down speeds between electric motors and driven machines.

Keystone Lubricating Company, Philadelphia, demonstrated at their booth the application of scientific lubrication method to machinery by the use of the Keystone Safety System and Keystone High Temperature Grease.

Liberty Manufacturing Company, Pittsburgh, Pa., displayed boiler tube cleaners.

Locke Regulator Company, Salem, Mass., showed reducing valves, damper regulators, engine-stop and speed-limit systems.

The Lunkenheimer Company, Cincinnati, exhibited cast-steel electrically-operated gate valves, all Monel valves for 400-lb. pressure and 750-deg. temperature, check and blow-off valves.

McLeod & Henry Co., Troy, N. Y., demonstrated suspended boiler arches and steel mixture veneer lining for furnace walls.

Manning, Maxwell and Moore, Inc., New York, N. Y., had on display "Ashcroft" gages and four Reeves variable speed transmissions of the latest design and construction. The Reeves transmission is a variable speed countershaft interposed between the source of power and is machine or conveyor driven.

Marlin-Rockwell Corp., Jamestown, N. Y., exhibited models of Gurney ball bearings and distributed literature.

Mason Regulator Company, Boston, showed reducing valves, pump governors, hydraulic damper regulators, and cast-steel valves.

Morse Chain Company, Ithaca, N. Y., featured the numerous applications of the Morse silent chain drives. These drives are applicable in many directions and operate at speeds ranging from 6,000 to 250 r.p.m. on centers as short as 24 inches or less.

Morse Steam Turbine Corporation, Wellsville, N. Y., exhibited designs of steam turbines and single and multi-stage centrifugal pumps.

Northern Equipment Company, Erie, Pa., had on exhibition a moving display of the Copes boiler feed-water regulator, as well as the Copes pump governor and the Copes valve movement indicator.

Nash Engineering Company, South Norwalk, Conn., showed compressors, pumps and return-line systems, an exhibit of special interest to paper mill engineers.

W. H. Nicholson & Company, Wilkes Barre, Pa., had specimens of their piston-operated steam traps on exhibition.

Niles-Bement Pond Company, New York, had representatives present to describe the gears and speed reduction units in which the firm specializes.

Norman-Hoffman Bearings Corporation, Stamford, Conn., showed the "Norma" ball bearings and "Hoffman" roller and ball bearings.

Norton Company, Worcester, Mass., exhibited their usual line of furnace linings and cements, including air-cooled. "Crystalon" furnace blocks, special hearth tile, baffle bricks, alundum enameling muffle, and the material of pulp grindstones.

Pennsylvania Crusher Co., Philadelphia, exhibited sectional views of coal crushers and conveyors.

Philadelphia Gear Works, Philadelphia, had drawings and literature on view illustrated of their industrial gear and silent chain drives.

The William Power Company, Cincinnati, exhibited valves and steam specialties.

Republic Flow Meters Company, Chicago, showed several of the new instruments developed by the company during the past year for increasing power plant efficiency. These include a meter for steam, air and gas, CO_2 recorders, pyrometers, liquid level indicators and coal meters.

S. K. F. Industries, Inc., New York, N. Y., exhibited ball

bearings and shaft hangers. The self-aligning ball bearing used in the S. K. F. improved hanger is essentially the same as the self-aligning bearing used in machine applications.

Sarco Company, Inc., New York, made a display of a self-adjusting steam trap of the expansion type. This is number nine of the series and is said to operate satisfactorily on a wide variation of bronze, corrugated helically.

Smith & Serrell, 20 Washington Place, Newark, N. J., exhibited the improved Francke flexible couplings for motor, turbine and engine drives. There were twenty-one regular sizes displayed, rating from ⅝ h.p. per 100 r.p.m. (4,000 r.p.m. maximum) up 3,850 h.p. per 100 r.p.m. (490 r.p.m. maximum) and for shafts from ¾" diameter up to 13" diameter. These couplings are known as the "Bushed Pin Type." The point made for the Francke coupling is that it is flexible in all directions.

B. F. Sturtevant Company, Hyde Park, Mass., showed lead-coated steel tube economizer, air preheater, fans and blowers for forced draft, small turbines and stokers.

C. J. Tagliabue Manufacturing Company, Brooklyn, N. Y., exhibited recording thermometers and controllers, featuring the Tag mercury-recording thermometer, the compensator of which automatically prevents atmospheric temperature changes from affecting the accuracy of the readings.

Taylor Instrument Company, Rochester, N. Y., showed a complete line of indicating and recording thermometers, mercury-column vacuum and pressure gages, barometers.

Terry Steam Turbine Company, Hartford, Conn., had a well-patronized booth, attendants being on hand to describe the line of steam turbines, reduction gears and flexible couplings.

The Toledo Pipe Threading Machine Company, Toledo, Ohio, gave an interesting demonstration of how Toledo hand-operated portable, pipe-threading and cutting tools can be converted into swift power machines by hooking them up to a power drive.

Uehling Instrument Company, Paterson, N. J., featured a waste meter for measuring and recording the fuel wasted up the chimney, a single chart recording the percentage of CO_2 and the temperature of the escaping flue gases. No chemical solutions, motors or electrical connections are employed in the instrument.

Warren Steam Pump Company, Warren, Mass., featured in their display the single and multi-stage centrifugal pumps made by the firm, as well as duplex pumps and air separators.

Warren Webster & Company, Camden, N. J., exhibited the modulation system of steam heating, packless valves, heaters, boiler returns and vent traps.

Watts Regulator Company, Lawrence, Mass., distributed flow charts showing the capacities in steam per hour of Watts reducing valves.

T. B. Wood's Sons Company, Chambersburg, Pa., had an informing exhibit of shaft collars, hangers, pillow blocks and flexible couplings and belt contractor.

Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pa., had their usual interesting exhibit of small steam turbines, air ejectors, circuit breakers, measuring instruments, micarta plates, tubing and gears.

I. C. C. Decision Favorable to Mathieson

Full tank car rates and privileges are definitely assured to the Mathieson multi-unit chlorine tank car hereafter, under an order of the Interstate Commerce Commission which directs the railroads, not later than December 10, 1925, to cancel their schedules which would have so increased the freight charges on chlorine, shipped in the multi-unit car, as to render its use commercially impracticable.

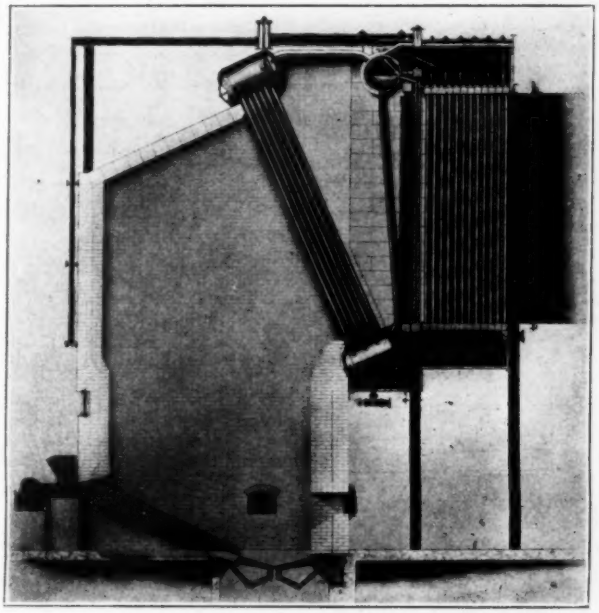
This favorable decision completely supports the contention of the Mathieson Alkali Works, and successfully terminates their long drawn out and expensive efforts to develop the multi-unit car, which, based upon their experience with chlorine, they believed to be the perfect vehicle for the transportation and handling of liquid chlorine. Extension of this principle to the handling of other compressed gases is now possible.

The Edge Moor Single Pass Boiler

Important Development in Steam Generation

REALIZING that boilers in great power stations today have had little change in general character in the past thirty or forty years, and appreciating the need for development of boiler construction along more logical lines than the prevailing types of multi-pass design, the Edge Moor Iron Co., Edge Moor, Delaware, have succeeded in developing a new boiler which is believed to establish a new era in steam boiler construction.

Based entirely upon the fundamental principles governing the economical transfer of heat from the combustion of fuel to the water within the boiler, the Edge Moor single pass



The Edge Moor Single Pass Boiler

boiler is in itself a complete steam-generating unit. It contains a superheater and mechanical soot-blowing equipment, and is enclosed in a sectional air-tight casing. When erected, it is ready for furnace and stack connection, no other appliances being required.

Features of Design

Details of construction are in accordance with established practice. The A. S. M. E. code is conservatively followed throughout, and the construction is approved for insurance by the underwriters. The features of design, however, are entirely new.

Each boiler is a compact steam-generating unit, made up of the following: (1) a heating section proportioned to bring water gradually to boiling point, with flow of water directed counter to flow of gases and with contracting gas pass area; (2) a closed circuit steaming section, in which the water is vaporized independently of the heating; (3) a sectional counterflow superheater, provided with means for temperature control; (4) soot-blowing system of stationary elements, with self-operating valves; (5) a sectional steel casing, insulated and of neat design; (6) the usual appliances, such as safety valves, blow-off valves, water column, etc.; (7) complete structural steel supports for mounting the boiler, independent of all building structural members.

How It Operates

Feed water is introduced at any temperature into the rear of the heating section, at the gas outlet or flue end. It follows a sinuous path from tube to tube, advancing from one row of tubes to the succeeding row, and meeting gases of progressively higher temperature. The water is thus heated gradually as it moves forward, and by the time it is ready to

pass to the steaming section, its temperature is that of the saturated steam.

In the steaming section, the water received at boiling temperature from the heating section is caused to circulate in a closed circuit, entirely separate from the water that is being heated. As the tubes in the steaming section are exposed to the hottest gases and to the radiant heat of the furnace, the boiling water is rapidly converted into steam, which is carried away to the superheater as quickly as it is formed. The heating and vaporizing are thus correctly accomplished as independent operations.

By the definitely directed flow of the water and the counterflow of the water and gases in the single pass boiler, the greatest temperature difference possible is obtained and is maintained throughout the entire process.

The movement of gases in their passage through the boiler follows the laws of heat transfer throughout. It is well known

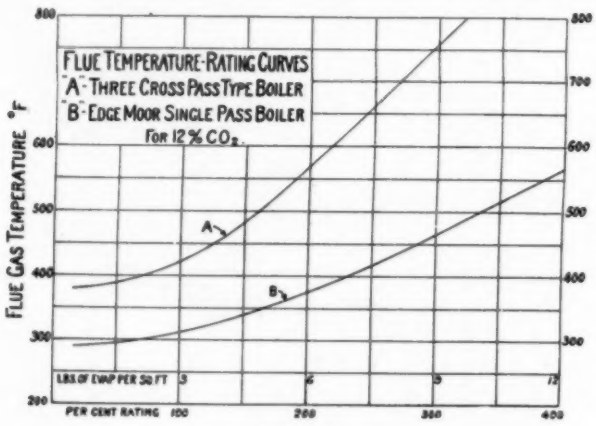


Figure 2

that the rate of transfer of heat from gases is proportional to the velocity of the gas flow. The single pass boiler is designed to keep the gas velocity high and as uniform as possible. This is accomplished by gradually contracting the gas passageway from furnace to flue, thus compensating for the change in specific volume of the cooling gases.

There are no baffles in the single pass boiler. The flue opening is equal in area to the length and width of the last row of tubes in the heating section. Because of these features, there are no dead pockets and no "drawing in" of the gases toward a central point. Exposure of all the tubes at full length to the gas flow is thus obtained throughout.

This feature of design, combined with the very close spacing of the tubes, is one of the reasons for the remarkably low flue gas temperatures obtained with the single pass boiler.

Because of the close spacing, the number of tubes to a given furnace width in this boiler exceeds by about 20 per cent the number in any multi-pass boiler. In addition, approximately twice as much tube surface is exposed to the radiant heat of the furnace as in the case of the usual boiler, thereby giving the single pass boiler greatly increased steaming capacity.

In the superheater, means are provided for the control of steam temperature. Since temperature control is desirable for the efficient operation of steam turbines, in the single pass boiler, a practically constant steam temperature can be maintained at any rate of evaporation by the use of dampers regulating the flow of the gases across the tubes of the superheater. These dampers are operated by motor power controlled by a thermostat.

The soot-blowing system is composed of stationary elements with a liberal supply of nozzles located to clean effectively all of the tube surface. The elements are divided into groups, with a steam line and valve for each group. All valves are assembled at one point and are operated consecutively under the control of a motor-driven pilot valve. Less than two minutes are required to clean the boiler completely, and because of the self-operating valves, the boiler can be blown often and kept absolutely clean with no greater effort than pressing a button.

The gas passageway of the single pass boiler is practically self-cleaning. The uniform gas velocity and the absence of corners or pockets make it impossible for dirt to collect inside the boiler setting. Soot and fly ash loosened from the tubes by the blowers are carried by the gases directly to the flue, where they can be collected by a cinder catcher and then easily removed.

The method of supporting the boiler entirely from the top, with all parts free to expand downward, eliminates all sources of strain.

Performance Proves Soundness of Design

In operation under normal and test conditions, the Edge Moor single pass boiler has proved itself capable of exceptionally high capacity and efficiency, with unusual economy of operation.

Draft loss is about one-fourth that usually encountered for equal capacity and efficiency, because of the single direct gas pass, the absence of baffles, and the fact that an economizer with its usual high draft resistance is eliminated.

The highest efficiency of the single pass boiler is reached when operating at about 300 per cent of rating. The single pass boiler shows as high efficiency at 400 per cent of rating as other boilers do at their point of highest efficiency.

By reference to the curve, Figure 2, the relation between capacity and efficiency of a cross-pass boiler and the single pass boiler is graphically shown by drawing a horizontal line from curve "A" to curve "B" and noting the rates of evaporation for equal flue gas temperatures.

The high efficiency at forced ratings of the single pass boiler is an important advantage of economy, both in new plants and in plants already built but requiring more power. In the case of the former, fewer boilers and less space are required to produce the desired power, while in the latter, greatly increased power production—often twice as much steam—can be secured from the space already available.

Plant Performance

In addition to the performance of the single pass boiler, it has marked advantages which affect the general performance of the boiler plant as a whole.

With its absence of baffles and low draft resistance, the single pass boiler can be operated at high ratings on natural draft, without the necessity for an unusually high stack.

Feed water can be introduced into the boiler at any temperature, since the heating section can be proportioned to receive the water at the desired temperature and bring it to the boiling point before it reaches the steaming section.

Tubes can be replaced in any section without draining off the water in the boiler except from the section containing the tube to be replaced. All parts of the boiler are readily accessible, and tube replacement is easily accomplished.

Because of the relatively high velocity at which the water moves through the heating section, the destruction of tubes by pitting will in a measure be overcome. While the wastage of metal, due to the entrained air, cannot be avoided so long as air is permitted to enter the boiler, in the single pass boiler the velocity of water is high enough to prevent the accumulation of air bubbles on the metal surface. The destructive action is thus distributed over a greater area of tube surface, insuring much longer life for the tubes, but is confined to the rear rows of tubes by reason of the directed flow of water.

The construction of the heating section, with its small headers and absence of baffles, makes it possible to replace readily those rows of tubes in the low temperature zone that are subjected to the destructive action of entrained air, or to low temperature flue gases.

The single pass boiler is adaptable to any type of furnace and firing equipment, burning any kind of fuel. It presents an unusually attractive external appearance, its greater part being enclosed in a neatly designed sectional steel casing, carefully constructed to furnish heat insulation and to prevent air infiltration to the boiler setting.

L. I. Presby, formerly connected with the Kent Paper Company, is now a member of the sales force of the Sutphin Paper Company, of 439 Lafayette street, New York.

Buffalo Cost Convention

Fourteenth Semi-Annual Convention of the Cost Association of the Paper Industry

By Special Correspondent

ABOUT forty, earnest and apparently successful business men of early middle age met on November 19 in Parlor B of the Statler Hotel, in Buffalo, for a two-days' convention of the Cost Association of the Paper Industry. They all seemed to be familiar with the making of paper, for that was easy in comparison with the business machinery of conducting affairs of large caliber. Complications are so many that it is a wise management that knows just where it is "at" long at a time.

The President, John E. Hyde, of the S. D. Warren Company, Cumberland Hills, Me., who, made a special point in his opening address of the desirability of the close affiliation of the association with the American Paper and Pulp Association. As the first paper was presented by a member of his own company he often took part in the discussion that followed it.

Mill Cost Methods

There were only two addresses scheduled for the morning session. The first was the mill and nothing but the mill, entitled "Mill Cost Methods," and was delivered by J. E. Whitman, who seems to have studied the relations of cost to sales seriously and to good purpose, for he went over the whole subject thoroughly and was able to answer most of the numerous questions that were fired at him after he had finished. It would not be possible to follow such a vast amount of factory detail with any completeness, but it may be said that the speaker insisted on the management knowing the relations of cost to receipts every day as far as possible. There must be predetermined values in everything, labor, material, and the aim of the paper was to show how these could be determined with not only sufficient accuracy, but speedily, for this undertaking must be supplemented by a budget system that was annual to begin with, but should be narrowed down to monthly and even weekly figures if possible. The speaker said he had worked on the budget system ten years. A member said that the difficulty was largely in estimating sales. The president urged the adoption of a budget system. This was decidedly a "budget" meeting.

Federal Tax Problems

The second paper was by J. A. Albrecht of Buffalo (C. P. A., or Certified Public Accountant, which he said a member of his family thought ought to be S. P. C. A.), and most of the time concerning "Federal Tax Problems," was devoted to variations on the business man's golden rule, "Do or you will be done."

Mr. Albrecht made no secret that he had been up against the tax authorities in Washington a good many times and that he was not in the best of standing with them. What he said of the methods of this board would not always look nice or maybe safe in a report like this, so a bit of specific advice may have to answer. The gist of it was that the tax payer is entirely justified in making as many and as stiff claims for exemption as possible, otherwise he is "done." For example, if a claim of 3 per cent depreciation was made, probably it would be allowed, but if 10 per cent was demanded you might get 7, and that would be gain. Always file the form T. P., was the advice, which may mean Tough Proposition or Thoroughly Prepared, but probably does not. It was made plain that the patient always needs the services of the accountant. Few questions were asked, for the case had been well covered, the depths had all been sounded.

The Outing and Banquet

The afternoon session was an outing. The members took busses for Niagara Falls, where they inspected the plant of the Defiance Paper Company's mill, what time they had left from looking at the Falls. For a wonder, considering what this autumn has inflicted on us, it neither rained nor snowed.

The banquet in the evening was well attended. The chief speaker was Secretary W. G. McNaughton of the Technical Association on the Pulp and Paper Industry of New York, who gave an interesting account of "Impressions Gained During a Recent Trip Through Pulp and Paper Mills in England, Sweden and Germany."

Friday morning opened with a demonstration at 9 o'clock of "Electric Tabulating and Accounting Machines by Representatives of the Powers Accounting Machine Corporation." Other accounting machines were to be shown, but by some chance did not get there.

Some Aspects of Wood Measurement

The morning paper was by D. A. Crocker, of New York, forester of the American Paper and Pulp Association on "Some Aspects of Wood Measurement." The paper was rather short, but much time was taken in the discussion, as it seems to be much of a problem yet how to measure pulp wood in the rough and determine from it how much pulp it will make. The speaker divided his subject into three heads, chips, slabs and round wood, giving most of the time to the last, finding 8-foot logs best to measure and most within the practice of sellers and handlers. This was suited to the farmer log trade, which was thought to be growing. As the wood ran shorter, the measurement became more difficult, though it was better adapted to handling sometimes. The speaker likes the cord basis, but finds that it is not always in use.

He mentioned a big shipment of chips lately in from the Pacific coast. Mr. McNaughton gave in the query that followed the paper, some details of the practices in preparing and marketing Canadian pulp wood. As to the amount of pulp a given measurement of wood ought to make, it was again held to be very difficult to compute.

Business Session

At 11 a. m. the business session opened with a long report by Secretary Thomas J. Burke, who said that the membership had increased slightly and though there was a deficit, it had been taken in hand by a committee which promised to eliminate it. The Association was self-supporting and in good condition. The secretary felt the need of more money to use in traveling expenses, so that he could visit the plants of the members at least once a year and find out what they suggested and asked for.

The secretary's paper went over some of the ground that had already been taken up and touched, especially upon the need of carefully worked out plans to offset government taxes. He knew of a case where $90,000 had been allowed on a single assessment where none was supposed possible. The idea was carried the same as on the previous day that it was better to do this work yourself, and always file Form T. P., the secretary declaring that work "never has been done as well by government as by private parties, and it never will be."

Election of Officers

J. A. Reilly, chairman of the nominating committee, reported the nomination of W. C. Scott, assistant treasurer of the Dill & Collins Co., Philadelphia, for president, and for secretary-treasurer, Thomas J. Burke, of New York, renominated, with a long list of vice-presidents, all of whom were renominated except Messrs. Fitzgerald, Jasperson and Reilly, who gave way to D. Bierman, J. E. Barrett and R. B. Knott.

The newly-elected president took the chair, merely remark-

ing by way of opening address that he didn't understand why they had "picked on" him, but promised to do his best.

Future Meetings Discussed

A long discussion arose as to the propriety of holding meetings once a year instead of twice. This was the fourteenth semi-annual convention and many thought that dividing the meeting into two every year weakened them. The secretary said it was almost impossible to obtain speakers enough to form a decent program. He had been turned down six times in succession in trying to find members who would read papers at this meeting. Somebody suggested that this was diffidence, and the secretary asked for a showing of hands of those who would promise to read papers at the next meeting, obtaining half a dozen or more, whose names he carefully preserved.

The matter of conventions was finally left to the executive committee, which will continue as usual, except that the retiring president was added. It was agreed to hold the annual meeting in New York in February.

Two Papers at Closing Session

The afternoon session was given up to two papers, the first by Harry D. Anderson, C. P. A., Syracuse, who went over the ground pretty thoroughly and advised all accountants to come out strong in their findings and their demands, for their work was as valuable as that of the superintendent, the chemist or the engineer. When he said that they might lose their jobs by this course it raised a laugh, but he stuck to the statement and said they would win in the end.

G. D. Bearce, of New York, chairman of the committee on waste of the Technical Association of the Pulp and Paper Industry, read a short paper on why the accountants should co-operate in the study of waste elimination, spending much of the time in showing that the closest possible watch should be kept in order to save material from going into the river after being once used, for this was a great source of loss. Favorable reference was made to the Hoover committee of four years ago or so and other public committees which had taken up this problem of mill waste.

Attendance

Among those attending, omitting the names of a few whose handwriting has been neglected, and falling down on some of the others, were:

A. W. Astly, Holyoke, Mass.; E. A. Austin, Erie, Pa.; James E. Barrett, Holyoke, Mass.; Thomas Bell, Fitchburg, Mass.; H. F. Borowski, Waronoco, Mass.; D. Bierman, Albany; H. R. Boston, Hoosick, N. Y.; Harry C. Bradford, Kalamazoo, Mich.; L. T. Bradley, Thorold, Ont.; Miss G. E. Byer, Carthage, N. Y.; Stanley Byron, Haverhill, Mass.; George W. Carr, Erie, Pa.; D. A. Crocker, New York; C. S. Douglas, Niagara Falls, N. Y.; E. E. Grant, Middletown, O.; R. Heisen, Hollingworth; S. A. Hummer, New Haven, Conn.; J. E. Hyde, Westbrook, Me.; H. J. Kendall, Passaic, N. J.; A. H. King, Holyoke, Mass.; R. B. Knott, Bangor, Me.; F. H. Kline, York Haven, Pa.; G. J. Kline, Miamisburg, O.; C. F., Kiederman, Hamilton; L. N. Lipa, Utica, N. Y.; A. C. Looke, Holyoke, Mass.; John T. Robinson, Boston, Mass.; E. H. Roorbach, Brownsville; W. C. Scott, Philadelphia; J. S. Seaborn, Chagrin Falls, O.; Harry R. Serf, York, Pa.; Charles V. Seidell, Boston, Mass.; A. S. Van Hanten, Garfield, N. J.; B. E. Vosteen, Buffalo, N. Y.; Norman G. Weber, Philadelphia; F. H. Webster, South Hadley Falls, Mass., and James E. Whitman, Portland, Me.

The Mathieson Alkali Works, Inc., 250 Park avenue, New York City, has established a new district sales office in Fairmont, W. Va., with W. C. McAdoo in charge as district sales manager. The territory to be handled by the new Fairmont branch office includes nearly all of West Virginia, the southeastern section of Pennsylvania and a number of cities located on the Ohio side of the Ohio River.

The J. F. Auer Paper and Board Corporation, of New York City, has been incorporated under New York State laws at Albany with a capital of $10,000 to deal in paper and paper board. J. F. Auer, R. E. Stine and S. Tannenbaum were the incorporators.

Cost Men Told of Accounting Machine

Connecticut Valley Cost Association Holds Interesting Meeting

COST Accounting Made Interesting might be made the headline for a meeting of the Connecticut Valley Division of the Cost Association of the Paper Industry, held at the Nonotuck Hotel, Holyoke, Mass., on Thursday evening, November 12, when Charles W. Gould, jr., cost accountant at the L. L. Brown Paper Company, Adams, Mass., described his experience with accounting machine methods as applied to the practice of modern cost accounting.

Representative Attendance

The meeting was attended by representatives of the principal paper manufacturing firms in the states of Massachusetts and Connecticut. The Taylor-Logan Paper Company Association sent its treasurer; the American Writing Paper Company, its chief accountant; the Strathmore Paper Company had the assistant to the vice-president in attendance, and the United States Envelope Company, of Springfield, sent M. F. Peterson, its assistant treasurer, who will be pleasantly remembered by many readers of The Paper Industry as the first secretary of the national organization.

A Pleasing Ceremony

After disposing of an excellent chicken dinner served in the best Nonotuck style, Chairman John H. Karges called the roll of members and visitors from the registry cards and asked those named to stand up and be seen, a pleasing little ceremony which made all better acquainted with each other. The associate editor of The Paper Industry, who was present as a guest, was asked to say a few words in advance of the chief speaker of the evening and he spoke briefly, but took occasion to compliment the gathering on the good attendance and the advantages of men getting together in this way to discuss problems of common interest.

Assemblying Figures by Machinery

The meeting was then turned over to Mr. Gould, who gave an outline of the cost accounting practice followed by the L. L. Brown Paper Company, with special reference to the use of an accounting machine in operating a modern cost system. This was the Remington accounting machine, by means of which, Mr. Brown said, the intermediate step of summarization is effectively performed with the maximum of neatness and accuracy and the minimim outlay of time and expense. The machine accomplishes this by writing, adding, subtracting and cross-footing or totaling the sums of several columns, and doing this concurrently, the data being accumulated for the purpose of journalizing. All summary or register sheets are made to conform with the requirements of the machine, thus standardizing all working papers and providing a uniformity that heretofore has been lacking. He said it was impossible to make an error in cross-footing, because of a locking device on the machine which interferes until steps are taken to correct any slip that the operator may have made in tabulating and so assure proof of clearance.

An Illustration

By way of illustrating the saving of time effected by the machine method, Mr. Gould explained that as lot cost cards are completed, checked and approved, they are posted to the proper summary sheet. The previous totals are "picked up," the current data posted, totaled, cross-footed and balanced at the same time. At the end of each day, the work of the cost department is completed. As a result, at the close of each "period," when time is most valuable and least available, the footing, cross-footing, balancing, etc., is a task already accomplished.

Describing his method of "closing," Mr. Gould said that at the close of each period the various summary or register sheets are recapitulated, after which an accounting machine trial balance is taken of the inventory cards, immediately below the sheets balanced, and the totals thus obtained are used as a basis for a journal voucher.

As to "Interest on Investment"

Mr. Gould has small patience with the professional cost accountants or devisers of special systems who insist upon including in their calculations "interest on investment" as an

operating expense, and he caused some merriment by humorous allusions to the futility of such charges.

What Is Market Price?

Another matter that came in for some razzing by the speaker was "standard costs of raw materials." He asked if there was anyone present who could tell him just what was meant by "market price." According to him, market price might refer to the quotations of individual firms, market quotations in trade papers or prices given in trade association bulletins, all of which were equally unreliable. The range of market prices was necessarily extremely wide, according to their source, and the most that could be said was that manufacturers did not, as a rule, purchase at such quotations.

The effect of using a standard materials price was, he said, reflected in a price variance account. The amount appearing in this account shows, upon analysis, not a material gain due to careful purchasing, but merely variations in market quotations and was consequently of no real value.

The members showed great interest in the speaker's statements, which were delivered extemporaneously, and a lengthy discussion ensued, which was enlivened by numerous witty, edgewise remarks by Mr. Gould, who is inclined to take a humorous view of seemingly perplexing problems.

Before the meeting adjourned, J. H. Reilly, chief cost accountant of the American Writing Paper Company, made a strong plea for a good attendance of eastern members at the fall meeting of the Cost Association of the Paper Industry to be held in Buffalo the following week.

The following members and visitors were registered as in attendance: A. W. Astley, Chemical Paper Mfg. Company, Holyoke; J. E. Barrett, American Writing Paper Company, Holyoke; A. M. Chadwick, Crocker-McElwain Company, Holyoke; Fred A. Cummings, United States Envelope Company, Springfield; Geo. F. Dudley, New York New England Company; Geo. W. Dingley, Newton Paper Company, Holyoke; F. N. Bridgham, Strathmore Paper Company, Mittineaque, Mass.; C. H. Gardner, Taylor-Logan Company Association, Holyoke; Charles W. Gould, jr., L. L. Brown Company, Adams, Mass.; T. J. Keenan, THE PAPER INDUSTRY, New York; A. H. King, Crocker-McElwain Company, Holyoke, Mass.; J. R. Hinkson, Hampden Glazed Paper Company, Holyoke, Mass.; J. L. McKay, United States Envelope Company, Springfield; Charles E. Hitchcock, Crocker-McElwain Company, Holyoke, Mass.; John H. Karges, C. H. Dexter & Sons, Windsor Locks, Conn.; Wm. M. Marshall, Chemical Paper Mfg. Company, Holyoke; R. H. Morrill, Chemical Paper Mfg. Company, Holyoke; A. C. Looke, Valley Paper Company, Holyoke, Mass.; Geo. Maxwell, Strathmore Paper Company, Mittineague; R. M. Mudgett, Strathmore Paper Company, Mittineague; M. F. Peterson, United States Envelope Company, Springfield; G. D. Porter, Strathmore Paper Company, Mittineague; J. H. Reilly, American Writing Paper Company, Holyoke; A. L. Thompson, Taylor-Logan Company Association; E. M. Walker, American Writing Paper Company, Holyoke; James Weir, United States Envelope Company, Springfield; F. H. Webster, Carew Paper Company, Hadley Falls; Edwin A. Wolcott, Crane & Co., Inc., Dalton.

Paperboard Industries Association Holds Successful Meeting

Members of the Paperboard, Container and Folding Box Groups, Paperboard Industries Association, convened in group sessions at the Waldorf-Astoria, New York City, on Wednesday, November 18th. The general meeting of the three groups, attended by all members, was held on Thursday, November 19th.

This was the first meeting since the organization of the association on September 11th. President Fletcher M. Durbin presided at the general meeting, while Vice-president Walter P. Paepcke presided at the Paperboard Group meeting, and Vice-president J. P. Brunt at the Container Group meeting. In the absence of Vice-president A. C. Osborn, President Durbin presided at the Folding Box Group meeting.

The general meeting was probably the largest gathering of paperboard, container and folding box manufacturers ever assembled at one place.

The Textbook Job Completed

On September 16, 1918, at Buffalo, N. Y., through a meeting of committees of the Technical Association of the Pulp and Paper Industry and the Technical Section of the Canadian Pulp and Paper Association, there was organized the Joint Vocational Education Committee of the Pulp and Paper Industry of North America, for the purpose of creating a set of textbooks which, in the language of the Committee at that time, was to be:

"So prepared and arranged that each man may take the part of the course during his spare time that will be most helpful to him in the carrying on of his daily work in the mill and which will tell him in simple language the 'how and why' of operations which will result in the best quality of product."

On this basis, the Joint International Committee was organized, consisting of George Carruthers and T. L. Crossley representing the Canadian section and George E. Williamson, C. P. Winslow and R. S. Kellogg representing the United States branch of the industry. This committee has remained intact to the present time, with the exception that after a a year or two the place of C. P. Winslow was taken by R. S. Hatch. During the entire period, George Carruthers has been chairman and R. S. Kellogg, secretary of the committee and J. N. Stephenson the editor of the textbooks.

The committee started with an idea but no money. In addition, therefore, to preparing the material for publication, it had the job of raising all the funds for necessary expenses. An outline of the contents of the proposed textbooks and a suggested program of instruction prepared by the committee was approved by the Canadian Pulp and Paper Association January 31, 1919, and by the American Paper and Pulp Association February 6, 1919, which became the basis for an appeal to the entire industry for financial and moral support. The response was generous and continuous through five annual assessments by the Canadian Pulp and Paper Association and individual contributions by 200 pulp and paper companies and manufacturers of mill equipment in the United States. Work went steadily forward and February, 1921, saw the publication of Volume I by the McGraw-Hill Book Company, with Volume II coming later in the year. Volume III appeared in April, 1922, Volume IV in January, 1924, and Volume V, completing the series of five volumes and 2,777 printed pages, came from the press in January, 1925. Altogether at least a hundred men of technical qualifications in the pulp and paper industry contributed to these volumes, either through the writing of sections therein or the criticism of the manuscript. More than two hundred and thirty distinct subjects, ranging from simple arithmetical operations through all phases of pulp and paper making down to the details of mill equipment, are treated in simple, elementary language, and the whole series carries a total of 943 illustrations, including nine plates in colors.

Parallel with the publication of the textbooks went the increase in facilities for class and correspondence instruction in the subjects treated by the Institute of Industrial Arts at Gardenvale, P. Q., the Extension of the University of Wisconsin, the University Extension Division of Massachusetts and various other institutions, so that already more than a thousand men, working in every capacity in the pulp and paper mills of North America from apprentice and beaterman to superintendent and sales manager, have taken the opportunity to learn the "how and why" of paper making.

The joint committee, having completed this particular phase of the job for which it was created, has had its record audited and submits the following financial statement covering six years of receipts and disbursements:

The Textbook Fund of the Pulp and Paper Industry

RECEIPTS AND DISBURSEMENTS

January 1, 1919-September 30, 1925

Receipts		
Assessments by Canadian Pulp and Paper Association	$26,859.35	
Voluntary Contributions by United States Pulp and Paper Mills and their friends	30,175.52	
Total		$57,034.87

Disbursements		
Editorial Salaries	31,541.37	
Preparation of Papers and Illustrations	16,916.53	
Rent	1,905.00	
Traveling Expenses	1,329.61	
Postage, Stationery and Printing	1,232.99	
Exchange	628.53	
Textbooks Supplied to Authors	432.13	
Office Furniture	235.00	
Miscellaneous	323.70	
Total		54,544.86
Balance September 30, 1925		
Canadian Pulp and Paper Association	1,234.01	
United States Fund	1,256.00	
Total		2,490.01
		$57,034.87

The balances remaining in the publication fund will be devoted to the furtherance of vocational education among mill employees in the United States and Canada. Nearly 12,000 volumes of the textbooks upon "The Manufacture of Pulp and Paper," which have received world-wide recognition, have already been sold, and the accruing royalties therefrom, which now exceed $5,000, are going into a separate permanent fund to be held for the necessary revisions and improvements of the books which will be made from time to time to keep them up with the progress of a rapidly growing industry.

The Joint Committee finds itself in the somewhat unique position of having completed its job with money in the bank and it assures the many contributors of time, effort and money to the undertaking that they will never have reason to regret their donations to such a good cause.

New Pulp Sampling Tool

The Thompson Manufacturing Company, of Lancaster, New Hampshire, announces that it is now putting on the market the Crossley pulp sampling tool. This tool was devised to obtain results on large numbers of unit packages in less time than the customary methods, especially on wet laps. It has been used for some years with all forms of pulp, both wet and dry, and has also been used for sampling baled rags and paper stock.

Figure 1

The accompanying illustrations show the tool and comparison with strip sample of wet laps. The two samples which gave practically identical results, are shown. Strips (left in Fig. 2) three inches wide, cut across sixteen wet laps, took forty-five minutes to cut, weighed 7,000 grams, and required thirty-six hours to dry. Cores (right in Fig. 2) cut with the Crossley tool, took eight minutes to cut, weighed 600 grams and required only ten hours to dry.

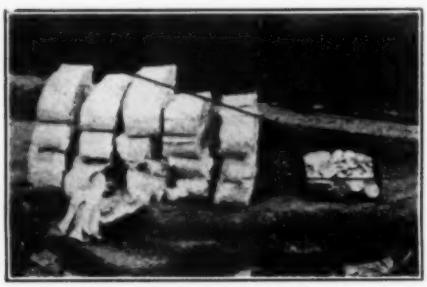
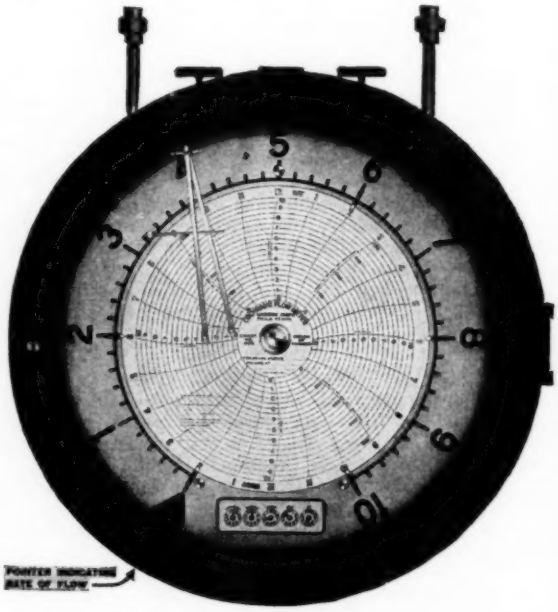


Figure 2

For sampling rags and old papers in bales, a longer cutting part is used. This can be attached very quickly in place of the shorter blade.

Recording Thermometer and Pressure Gauges Combined with Flow Meters

In order to determine correctly the weight of water, gas or vapor from the record of a pipe flow meter, it is necessary to know the density of the fluid passing through the orifice or other metering element. This implies a record of pressure or temperature, or of both, in order to be able to determine the density of the fluid. Continuous records of pressure and temperature are also useful for other purposes, as for determining the efficiency of boilers, economizers or heaters or



the superheat in steam supplied to turbines, or other prime-movers.

The Cochrane flow meter shown herewith provides for making the additional records of temperature and pressure upon the flow meter chart itself. The pens of the temperature and pressure units are actuated by helical Bourdon tubes, calibrated to record pressure or temperature accurately over specific ranges. The pressure unit is provided with a half inch pipe connection at the meter, while the thermometer unit is supplied complete with capillary tubing, bulb and separable socket.

The pen or pens which record temperature or pressure rotate about the same axis with the flow pen and have a radical movement on the chart of four inches. In order that the several pens may clear one another, they are spaced apart by distance representing ten minutes of time. The pens are provided with micrometer adjustments and with a pen lifting device which holds the pens clear of the chart while the latter are being changed.

The recording thermometer is of the type which utilizes the expansion of an inert gas contained in a bulb inserted where the temperature is to be measured, different styles of bulbs being supplied for different situations. The type of bulb used for measuring flue gas, for example, is sensitive over a length of 24 inches from the tip and the sensitive part should be located in such a position that it will be exposed to average temperatures. The bulb used for measuring steam or water is supplied with a separable socket, which is of bronze for saturated steam and of steel for superheated steam.

The thermometer and pressure scales are uniform, like the scale of the flow meter chart, that is the spacings between the lines are the same for high values as for low values. This is a great convenience, not only when integrating the charts for the purpose of obtaining average values, but also in reading the charts, as there is no misleading distortion. Deflection in proposition to flow rather than in proportion to differential pressure is secured in the Cochrane flow meter by the

use of a cam fastened to the tilting manometer, which presses against a weighted metallic ribbon and is so shaped that the force exerted by the ribbon increases with the deflection in such a way that the deflection is directly proportional to the rate of flow.

The chart upon which temperature, pressure and flow are recorded is driven by a powerful clock, which also actuates an integrator without imposing any resistance to the deflection of the manometer balance.

Elimination of White Water Losses in Paper Mills with Oliver Save-Alls

Efficient recovery of waste fiber contained in white water is a problem that has confronted paper mill operators for many years. The efforts of filtration experts throughout the country have been centered upon evolving an efficient, simple and economical means of stopping the terrific loss in fiber that is yearly discharged to the sewer in paper mills throughout the world.

It is conservatively estimated that white water losses in paper mills of this country amount to 7 per cent of all pulp produced.

Several types of save-alls have been evolved embracing broadly three general principles of recovery: (1) power-driven revolving cylinders, (2) sedimentation tanks, and (3) inclined screens.

A save-all of remarkable efficiency and embodying many new and advantageous principles of design and operation has recently been developed by the Oliver Continuous Filter Co. The Oliver save-all is the result of years of scientific study and experience in the analysis and solution of a large variety of industrial filtration problems.

The following report outlines briefly the most salient features and recoveries effected by the Oliver save-all installation at the Camas, Washington, mill of the Crown Willamette Paper Co.

All tests for recoveries and capacities were made under the personal supervision of Mr. Walter Bain, chief chemist of the Camas Mill, and all samples were taken by members of his staff.

Figure 1 is a diagrammatic layout of the general method of installation of the save-all in connection with the paper machine. This arrangement would be essentially the same for any paper or board machine of either the Fourdrinier or cylinder mould type.

Principle of Recovery

Machine white water is pumped to the Oliver, being mixed en route with a small amount of the same furnish that is being used in the manufacture of the paper on that particular machine.

This furnish, which under normal conditions is at 3 per cent consistency, is drawn from the regulating box of the paper or board machine before it passes through the Jordans.

The proportion of machine furnish borrowed to machine white water delivered is approximately 18 pounds of machine furnish per 1,000 gallons of white water. Amounts considerably in excess of this ratio show no appreciable increase in recoveries effected.

The long fiber stock in the furnish mixed with the short fiber stock in the white water effects the rapid formation of a porous sheet upon the 60 mesh wire cloth with which the cylinder of the Oliver is covered.

The cylinder is divided into 18 sections, each independently controlled by a single automatic valve. A vacuum of approximately 12 inches of mercury is maintained on the revolving cylinder. No air is drawn through the bare wire as the cylinder travels from the doctor to the pulp level in the tank, and sheet formation is coincident with the submergence of the bare wire. With instantaneous sheet formation all water discharged from the Oliver is drawn through a sheet of fiber of increasing thickness. This sheet is an ideal filtering medium, and because of its high porosity, large volumes of clear water can be passed through the sheet while all insolubles are retained in the sheet and discharged with it, by means of a doctor placed at the descending side of the cylinder.

The sheet, consisting of the original stock borrowed from the regulating box together with the fiber recovered from the white water, is returned directly to the machine chest and re-used on the same machine from which it was recovered.

It will be seen from the above brief description of method and principle of operation that apart from the high recoveries effected, the heretofore perplexing problem of segregation of fiber when running on various colored stock has been definitely solved.

Recoveries

The recoveries as listed in Figure 2, were established by

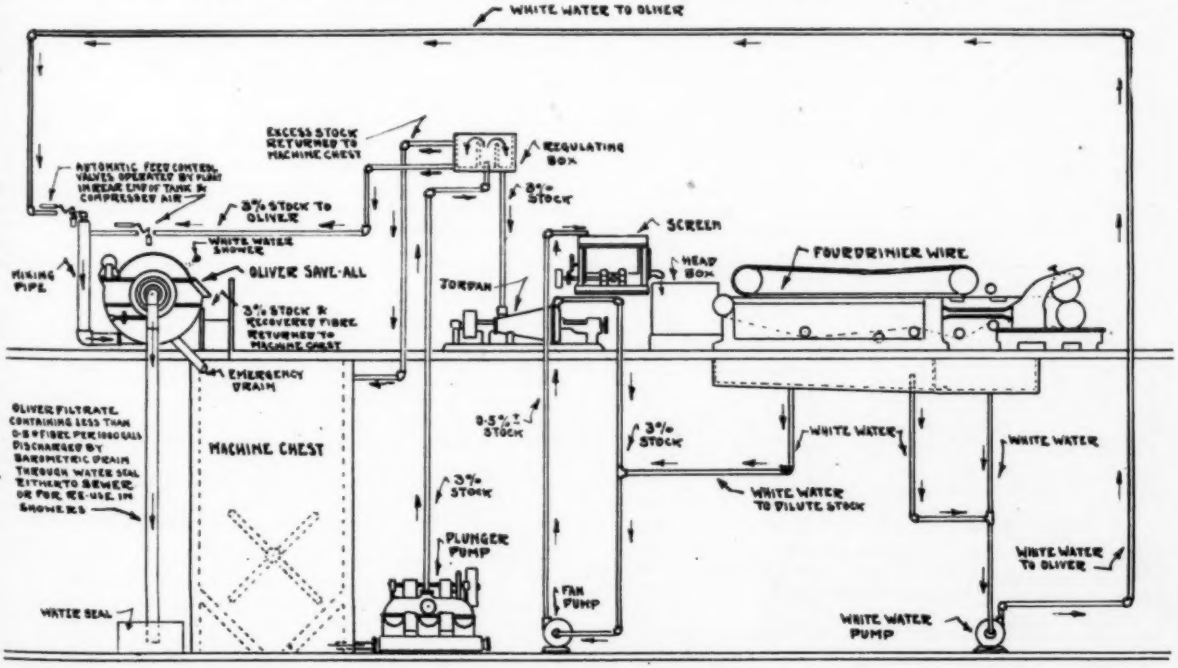

WHITE WATER TO OLIVER
EXCESS STOCK RETURNED TO MACHINE CHEST
REGULATING BOX
AUTOMATIC FEED CONTROL VALVES OPERATED BY FLOAT IN REAR END OF TANK & COMPRESSED AIR
3% STOCK TO OLIVER
8% STOCK
SCREEN
WHITE WATER SHOWER
OLIVER SAVE-ALL
MIXING PIPE
JORDAN
HEAD BOX
FOURDRINIER WIRE
3% STOCK & RECOVERED FIBRE RETURNED TO MACHINE CHEST
EMERGENCY DRAIN
OLIVER FILTRATE CONTAINING LESS THAN 0.5 FIBRE PER 1000 GALS DISCHARGED BY BAROMETRIC DRAIN THROUGH WATER SEAL EITHER TO SEWER OR FOR RE-USE IN SHOWERS
MACHINE CHEST
0.5% STOCK
3% STOCK
3% STOCK
WHITE WATER
WHITE WATER
WHITE WATER TO DILUTE STOCK
PLUNGER PUMP
FAN PUMP
WHITE WATER TO OLIVER
WATER SEAL
WHITE WATER PUMP

Fig. 1—Diagrammatic layout of Oliver Save-All installation using machine furnish as a filter aid in the recovery of fibre losses in waste white water

actual filter operation from tests taken by Crown Willamette Paper Co.'s laboratory staff.

It is important to note that on all tests made, the amount of fiber contained in the white water sent to the save-all did not affect the filter capacity or the amount of fiber remaining in the filtrate as discharged.

In all cases, the amount of fiber in the save-all filtrate was so low as to be negligible, and was not sufficient to clog the shower pipes of the paper machines.

Capacities

The capacities or filtering rates on various grades of stock as obtained at the Camas mill, shown in Fig. 3, indicate very clearly that the freeness of the stock has a definite bearing upon its filtering rate—governed chiefly by the proportion of ground wood in the furnish used as a filter medium. Higher cylinder speeds gave higher filtration rates and slightly lower recoveries unless the first portion of filtrate was returned to the feed.

Power Required

The power required for operation is surprisingly small. Only 2 to 3 h. p., depending upon the size of filter, is required to operate the Oliver and approximately 15 h. p. per million gallons per day for the white water pump supplying the filter—assuming a 40-foot head.

GRADE OF PAPER	% Sulphite	% Gr. Wood	% Kraft	Cap. per Sq. Ft. Filter Surface G.P.M.	Cap. per Sq. Ft. Filter Surface Gals. 24 Hrs.	REMARKS
10% Orange Citrus Tissue	100	..	..	6.1	8.800	Speed of Drum: 133 R. P. M. Furnish Used: Approx. 18 # per 1000 Gals. Cover: 60 Mesh Bronze Wire
40 # Sulphite Wrapper	100	..	..	5.5	7.900	
20 # Kraft	..	..	100	3.6	5.200	
30 # Butcher Manilla	50	50	..	3.6	5.200	
27½ # News	25	75	..	3.3	4.750	

Fig. 3—Filtering rates on various stocks as obtained with 5'-4"x8' save-all at Camas mill of Crown Willamette Paper Co.

With the Oliver installed as shown, so as to permit of gravity discharge of reclaimed sheet direct to machine chest and a drop of 20 feet or over to permit of discharge of filtrate through barometric leg, no further power or equipment is necessary.

Oliver automatic feed control valves in the feed lines eliminate all possibility of spills, and the save-all is so designed that no attention beyond the usual cursory inspection required on all low speed machinery is necessary to insure continuous and automatic operation. The Oliver can be washed up between changes of furnish in a few minutes' time without any loss of stock.

Conclusion

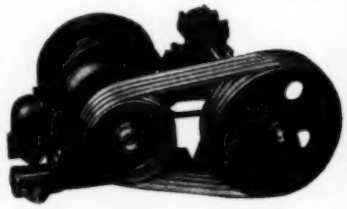
The above data proves that the Oliver save-all is capable of reducing white water losses to less than 1 per cent of the fiber sent to the paper machine and overcomes all difficulties attendant on the mixing of colors and grades of stock. The Oliver furthermore fulfills the following essentials: high capacity and recovery, low power consumption, nominal attention and repairs. Paper mill managers can profitably consider the great savings to be effected by the use of Oliver save-alls.

The Texrope Drive

An important development in the field of power transmission machinery has just been announced by the Allis-Chalmers Mfg. Co., who have recently perfected an entirely new type of short center, flexible drive, known as the Texrope Drive.

The Texrope Drive consists of two grooved sheaves and a number of specially constructed endless "V" belts. The sheaves are set just far enough apart so that the belts fit the grooves without either tension or slack.

Since the Texrope belts just fit the sheaves, there is said to be no slack or lost motion in the drive. Because of the "V" construction, they cannot slip, as the harder the pull the more firmly the belts grip the grooves. Being elastic and stretchable, they cannot jerk, either in starting, acceleration or running, nor can they transmit vibrations, but act as cushions between the driving and driven machines, delivering smoothness of transmission.



Bearing pressures are low, since no belt tension is employed. The drive occupies very little space. It is silent, perfectly clean, unaffected by moisture or dirt, and is safe, simple and trouble proof. Since there is no slip, the speed ratios are fixed and exact. It is durable, and each belt carries its proportional share of the load.

Texrope Drives from ½ to 250 H. P., with ratios up to 7 to 1 and belt speeds from 800-6000 feet have already been placed in service. They have been applied to nearly every industry for fans and blowers, machine tools, elevators and conveyors., etc.

The Keller-Dorian Paper Co., of New York City, was incorporated at Albany, N. Y., a few days ago. The new corporation has a capital stock of $10,000, and G. Mills, G. T. Remsen and J. L. Silvin were the incorporators.

The International Paper Co., a New York corporation, has filed notice with the Secretary of State at Albany of an increase in capital stock from 1,250,000 shares to 1,750,000 shares, of which 1,000,000 shares are valued at $100 each, and 750,000 common shares are of no par value.

STOCK HANDLED	% Sulphite	% Gr. Wood	Gals. White Water Per Ton Paper	FIBRE CONTENT Without SAVE-ALL # Per Ton Paper	# Per 1000 Gals. W. W.	* % Loss	With OLIVER SAVE-ALL # Per Ton Paper	# Per 1000 Gals. W. W.	* % Loss	Amt. of Furnish Req. per ton Pap. Without Save-All	With Oliver Save-All	Weight of Fibre Saved by Oliver Per Ton of Paper	Per 1000 Gals. White Water
10 # TISSUE (Made on Harper Machine)	100	....	144,000	240	1.67	12.0	17.4	0.121	0.87	2240	2017.4	222.6	1.55
40 # SULPHITE WRAPPING (Made on Fourdrinier)	75	25	80,000	144	1.8	7.25	11.0	0.138	0.55	2144	2011.0	133.0	1.66
50 # BUTCHER MANILLA (Made on Fourdrinier)	50	50	48,500	75	1.54	3.6	6.7	0.137	0.33	2075	2006.7	68.3	1.40
20 # KRAFT (Made on Harper Machine)	100%	Kraft	80,000	150	1.88	7.5	19.6	0.245	0.98	2150	2019.6	130.4	1.63
27½ # NEWS (Made on Harper Machine)	25	75	77,600	239	3.08	11.9	11.2	0.144	0.56	2239	2011.2	227.8	2.94
* % Loss is based on weight of paper produced by Machine.													

Fig. 2—Recovery table of various classes of stock with Oliver save-all at Camas mill of Crown Willamette Paper Co.

Dr. Hugh P. Baker on Trade Associations and Their Problems

Address Delivered by the Executive Secretary of the American Paper and Pulp Association, New York City, at the Annual Meeting of the Academy of Political Science, New York City, October 28, 1925, included in the Proceedings of the Academy of Political Science, Kent Hall, Columbia University, New York, Volume xl, No. 4.

DR. HUGH P. BAKER, Executive Secretary of the American Paper and Pulp Association, delivered an exceptionally fine paper on the "Present Status of Trade Associations and Their Problems" before the recent annual meeting of the Academy of Political Science, in New York City. Its very high and educational value as a discussion of the place which the trade association holds in our economic life, recommends its reproduction in THE PAPER INDUSTRY in full, but opportunity is granted to only touch upon a few of the salient points which the paper covered.

Trade Associations a Permanent Phase of American Business Life

"Trade associations have come to be a permanent and an increasingly important factor in the business life of this country," said Dr. Baker. "That this statement may be amplified and emphasized it would be desirable to state the problem—to put before you an accepted definition of a trade association before an attempt is made to discuss the place of the association in our economic life. A workable definition of a trade association should be very helpful also in limiting and focusing the discussion.

"The national organization of trade association executives was in existence for several years before any general agreement could be reached even by the trade association executives themselves as to a satisfactory definition of a trade association. Finally, a special committee was appointed to draft a definition and this was officially approved by the organization in 1922. The American Trade Association Executives, define a trade association as follows:

"A trade association is an organization of producers or distributors of a commodity or service upon a mutual basis for the purpose of promoting the business of their branch of industry and improving their service to the public through the compilation and distribution of information, the establishment of trade standards, and the co-operative handling of problems common to the production or distribution of the commodity or service with which they are concerned.

"A better definition of the full functioning trade association of today it would be difficult to develop and we shall therefore make this definition the place of beginning for this discussion. We are only well started in the process of defining and standardizing the work being done by trade associations, and we are very much at the beginning of the development of a profession of trade executives. Such a situation in trade association development should offer the greatest possible opportunity for discussion and formulation of opinion, and the Academy of Political Science of the City of New York is to be commended for the giving of the time at an annual meeting to a discussion which should result helpfully, not only to trade associations themselves, but to the business groups which they are serving.

"In the brief and fragmentary comments, of which this paper is formed, no attempt is made to discuss the legal status of trade associations. It may seem somewhat difficult to discuss a trade association today without considering the legal issues involved, and particularly the attitude of the government toward trade associations. Those phases of the subject are of great importance, of course, and it is assumed that they will be discussed elsewhere on the program by men competent to express legal opinions.

Economic Position of the Trade Association

"Perhaps trade associations have been at fault," Dr. Baker said, "in allowing the legal phases of their activities to be discussed so generally and so often to the exclusion of the consideration of the more important question of their economic value.

"Any effort which would result in the breaking down of distrust and suspicion among business men and which would bring knowledge and understanding of basic economic principles and procedure in place of ignorance and misunderstanding, would beyond a doubt make business men better men and citizens.

"Disturbing factors or quakes have often and regularly in the past affected our business structure, jarring and disrupting and bringing peaks and valleys in business. Organized effort among business men through trade associations has brought about sounder building in business and put in new foundation stones to steady and prevent the jarring and toppling of business structures.

Effect of the Need for Information Upon Formation of Associations

"The increasingly difficult economic conditions of the past decade have made business men turn as never before to the consideration of the economic factors which have been more or less apparent as affecting the trend of business progress. This growing demand for accurate information as to facts and figures which may help in the charting of the course of individual business and business by industries as a whole, has brought into our business life two very interesting individuals—the statistician and the business economist.

"The business economist, whatever that term may mean, came into his own during the Great War. The allied governments, particularly, found it necessary to deal with organized groups in our industries and, often where industries were not organized, governments were instrumental in forming organizations for better co-operation, not only as among the units making up those organizations but as between the groups and the government. Along with this development came the need of the government for accurate information, for facts as to raw materials and a thousand and one other things. The statistician and the business economist appeared to fill the breach—and furnish the facts—and they were taken on by the newly formed organizations and one may almost conclude that since the war these makers of figures and facts and futures have turned on the government and taken it on and over. But these men have proven their value and are contributing much to trade association work.

"As business organizes itself more effectively finding that it can voluntarily do for itself through its associations what it has for long felt it must have done for it by the government, or by private statistical or other services organized for profit, the associations controlled by and for the good of an entire group will take the place of federal bureaus and private services, and all for economy and efficiency for those making up the associations.

Meeting the Tendency Toward Government Control

"The co-operation between business and the government, which was so necessary in the war period resulted in very helpful developments in organized effort in many of the industries. On the other hand, there have been numerous cases where the government's unrestrained and over-eager desire for intimacy with business has had very harmful results to business organizations. The necessary war effort almost fixed the bad habit upon certain groups of business men of turning to the government whenever outside help seemed necessary. This attitude on the part of some business men has been taken advantage of by those at Washington who would develop a much stronger centralized control than seems desirable in such a government as ours.

"Industry as a whole has been partly at fault in the growing tendency on the part of the government to inject itself in a harmful way into the business of the country. It has helped the public, unknowingly possibly, to the conclusion that Congress may so legislate as to influence or change the working out of fundamental economic laws. On the other hand, the thinking trade executive is quick to see that after all, business men are a fundamental part of the government and that there is a great possibility of help to industry through sensible co-operation with governmental departments, particularly where those departments are led by business men of broad vision."

In the event of changing administration, Dr. Baker pointed out that soundly organized and carefully guided trade associations should function very effectively as a balance wheel in difficult relations between business and government.

As a help to the discussion of his subject, Dr. Baker dealt

with the present status of the American Paper and Pulp Association, of which he is the executive secretary, and recited the fact that the paper industry of this country has been served by trade associations longer than any other industry of equal importance. The Writing Paper Manufacturers' Association is claimed to be the oldest trade association in the United States, having been formed in the year 1861. Today it represents approximately 95 per cent of the tonnage of writing paper manufactured in the country and is giving most efficient service, in fact, living out the definition of a trade association given in the beginning of his paper.

Some ten years ago, the American Paper and Pulp Association became a federated organization through the bringing together of some of the branch associations representing the various groups of the industry, and today the association is in fact a national federated organization.

Types of Association Problems

Two series of problems confronting every national trade association were given as: first, the interior problems of maintaining a satisfactory and effective association; second, the exterior problems of service by the association to its members, relation with the public and the government, and with other national organizations.

In a way, these two series of problems are so closely interwoven, said Dr. Baker, that they must be considered together, whether we are discussing colleges or trade associations, and incidentally, the suggestion was made that from certain angles the trade association is in fact very much of an educational institution.

Among the more important of the inside problems of the ordinary trade associations are: first, the securing of unified support from an industry for the trade association serving it; second, the constant problem of adequate support—the question of what is the most satisfactory basis for the assessment of membership dues seems to be always a question—shall dues be assessed on the basis of unit of production or gross sales, upon wages paid, or upon some other factor which is fairly uniform throughout the industry; third, the securing of the assistance of key men in the work of the association—everywhere today, we hear the call for more effective leadership in politics and religion and in education, and in our associations, we are facing the same need; fourth, the vocalizing of the needs of the industry through the association; fifth, the problem which involves the personality of the manager of an association in maintaining satisfactory personal contact between the association's staff and its membership.

Brief reference was made to the outside problems of the ordinary trade association, which were listed as: first, informational, involving the fact-finding and research activities of an association and its contact with the public; second, directional, which may well be used as a term to cover the service rendered by an association in connection with the problem of production and the problems of more satisfactory business contact; third, distributional problems; and the fourth, which the speaker said might possibly have come under some one of the immediately preceding heads, and yet it seemed that the problem of outside relationships, particularly with other national organizations and with the Federal Government, should be considered as separate problems.

In closing, Dr. Baker repeated that trade associations as agencies of service to industry are a permanent part of the business and the economic life of this country, saying: "There is very great opportunity before them in creating conditions that will make for higher standards in business, for harmony and peace among business men, for more effective production and distribution, and finally for the carrying on of the business of the entire country in such a way as to give all who are concerned in any way with business or industry a fuller and a more satisfactory life as individual men and women."

The J. E. Linde Paper Co., one of the oldest and largest paper jobbing firms in the metropolitan district, has negotiated a long-term lease on the quarters it occupies at the corner of Beekman and Cliff streets, New York, comprising four buildings covering a plot of approximately 15,000 square feet and containing over 100,000 square feet of floor area. The aggregate rental amounts to about $300,000. The new lease becomes effective May 1, 1927, and under it the Linde Company pays the taxes, assessments, insurance and repairs. The Linde Building is one of the largest on the East Side of New York and is modern in every particular, fully sprinklered and with heavy carrying capacity.

Virginia Superintendents Have Good Meeting

Hear About Progress and Development of Paper Machine Drives

SUPERINTENDENTS of pulp and paper mills in the Virginias, North and South Carolina, the District of Columbia and Maryland, have formed a local organization of the American Pulp and Paper Mill Superintendents' Association, known as the Southeastern Division, with headquarters in Richmond, Va., of which Carl Magnus, superintendent of No. 3 mill of the Standard Paper Manufacturing Co., is chairman, the secretary being M. J. Guild, of the Albermarle Paper Manufacturing Co., Richmond, who was appointed to succeed the late J. Allen Ramsey, formerly sales manager and assistant superintendent of the Bedford Pulp and Paper Co., Big Island, Va., who died suddenly in Cincinnati a short time ago, leaving a wife and mother to lament his loss.

First Regular Meeting

The first regular meeting of the Southeastern Division since its organization last April took place at the Hotel Richmond in Richmond, Va., on Friday evening, November 20. It was preceded by a well served dinner of several courses which was thoroughly enjoyed by twenty-five members and visitors. Following the dinner, Thomas J. Keenan, associate editor of THE PAPER INDUSTRY, made a brief talk, giving his impressions of pulp and paper mills visited by him during a tour of the region covered by the Southeastern Division.

The chief speaker of the evening was H. W. Rogers, of the General Electric Co., Schenectady, N. Y., who reviewed the progress and development of the electric motor as applied to the sectional drive in operating paper machines.

Mr. Rogers projected views of electric sectional drives of the synchronous tie-in type and the regular type on a screen, together with contrasting types of equipment and sectional views of a Fourdrinier paper machine, the room in which the meeting was held being darkened to permit the use of lantern slides.

Slow in Adopting Electric Drives

The pulp and paper industry had until a recent period been slow about adopting the more modern and efficient types of drive inherent in the electric motor, Mr. Rogers said. Present types of mechanical drives were referred to as marvelous products of the millwright, but masterpieces of low economy and low efficiency.

Practically all new mills are electrically equipped throughout, and most old mills use motors to a limited extent on pumps, beaters, Jordans, screens, etc., but the most important machine in the mills, the paper machine, the heart of a billion dollar industry, has been neglected, for aside from the suction couch and the suction press, the machine is the same today as it was thirty years ago.

Mr. Rogers said that out of a total of 1,600 paper machines in the United States and Canada, perhaps 200 were equipped with sectional drives, 80 per cent being still operated with the old mechanical drive and steam engines.

Application of the Sectional Drive

The development of the sectional electric drive had been hastened by the growing use of high speed paper machines and while it was originally thought that the sectional drive was inapplicable for small slow-speed machines, this notion has been abandoned, and it is today not only a recognized possibility on any size or type of machine making paper, but it was always possible, Mr. Rogers said, when considering a new machine, to justify a sectional drive over any other type of drive, the advantages all lying with it.

The Variable Speed End

Speaking of the variable speed end of the paper machine, Mr. Rogers said the driving requirements here were very exacting. The stock enters the machine at the wet end on the wire of a consistence of 99½ per cent water and ½ per cent

stock. Here the sheet is formed and in three seconds 99 per cent of the water is removed, after which the sheet passes through one or more press roles and over the dryers to the calenders, reel and rewinder, as finished paper with about 8 per cent moisture, the whole operation requiring probably forty seconds.

A continuous sheet must, therefore, be maintained throughout the machine and owing to its condition there is a slight difference in speed between each section which must be maintained absolutely. This difference in speed is called "draw" and varies from time to time with the conditions of the stock and the grade of paper and must, therefore, be capable of adjustment. It is here that the requirements for an electric drive are especially exacting, since there must be close speed regulation, but also means of adjusting the "draw" between sections.

Not a New Idea

It was pointed out by Mr. Rogers that sectional electrical driving of paper machines was not a new idea, though the increased demand for paper in 1919 started inquiries which led to their more general adoption. Thus, he mentioned that sectional paper machine drives were in operation at the mill of the Gould Paper Co., Lyons Falls, N. Y., in 1908, without, however, any means of tying the sections together at that time.

First Real Sectional Drive

In 1909, the General Electric Co. installed the first real sectional paper machine drive at the Chisholm Falls plant of the International Paper Co. This drive consisted of direct current motors with quarter-phase collector rings and a mechanical speed changer for draw adjustment. Subsequently, the Harland Engineering Co. installed a drive in Scotland on a slow speed novelty machine and this was followed by the Westinghouse Co. in 1919 when they installed their tie-in regulators on one of the machines at the Gould Paper Co.'s mill.

Meeting a New Demand

The demand for sectional drives increased with the consumption of paper, which was prodigious in 1919, and electrical manufacturers were not fully prepared to meet it. In a short time, however, the General Electric Co. arose to the occasion and supplied the demand by conceiving a synchronous tie-in type of drive which was built and put into successful operation at the Crown Willamette Paper Co., Oregon City, Oregon. Eleven duplicate installations were constructed in other mills during the same year. At the same time, the Westinghouse Electrical and Manufacturing Co. and the Harland Engineering Co. were exploiting sectional drives of a different character, but not in such large numbers.

Only Two Types in Use

Mr. Rogers said that, strictly speaking, there were only two types of drives at present on the market, namely, the synchronous tie-in drive of the General Electric Co., and the regulator type. In the first named there was an actual interchange of energy between the various machine sections, the relative speeds being held constant by sychronous motors. In the regulator type of drive the speed of the various sections was maintained by shunt field adjustment on the motors. While the G. E. synchronous tie-in is preventive rather than corrective, the regulator type is classed as corrective, since an actual change must take place to make the regulators function. The G. E. regulator type, the Westinghouse drive and the Harland drive are all of this type, being operated on the principle of shunt field control, though the means employed to obtain the results differ widely.

Mr. Rogers explained the difference between the two types of drives in a clear and interesting manner. He said the sectional drive for paper machine will be more extensively used when its advantages are better appreciated by the trade. The General Electric Co. favors the use of a slow-speed direct-connected motor in preference to a high-speed geared motor.

Discussion of the paper was invited by Chairman Magnus and several questions in regard to types of motors and electrical equipment were answered by Mr. Rogers. Mention was made by him of a consistency regulator of a photo electric character which was being experimented with by the General Electric Co. Photo electric cells having a sodium salt in the bulb were referred to as the equipment, a statement which brought an inquiry as to whether or not a selenium salt was meant, the reaction of selenium to light being well known, which was not the case as regards sodium.

Business Meeting Follows

A business meeting of the Southeastern Division followed the presentation and discussion of Mr. Rogers' paper, and this lasted till 11 o'clock. Carl Magnus presided as chairman. He said that the executive committee at a recent meeting in Detroit had voted to authorize a representative from each division to act with the American Paper and Pulp Association on vocational education, and he invited nominations. B. K. Stedman, of the Standard Paper Manufacturing Co., was nominated and subsequently elected to represent the Southeastern Division on the Vocational Education Committee.

Frequency of Meetings

When and how often to hold regular meetings was discussed. C. W. Baker, of the Bedford Pulp & Paper Co., Big Island, Va., suggested a six-month interval, but this was not received favorably, and it was decided to appoint a committee to be named by Chairman Magnus for the consideration of frequency of meetings and where to hold them. It was also voted to authorize the chair to appoint a committee on membership.

A resolution was adopted expressing the sympathy and condolence of the division to the widow and mother of J. Allen Ramsey, late secretary-treasurer.

Proposed Joint Southern Meeting

Chairman Magnus brought up the question of holding a joint meeting in the spring with the Southern Division, organized some time ago in Louisiana. Richmond was suggested as a central point for the proposed meeting, but in view of the strong affiliations of the Champion Fibre Co. at Canton, N. C., with the Southeastern Division, it was thought that Asheville might be a more desirable meeting place. The matter was referred for consideration to the new committee on program.

Annual Meeting in Detroit

Announcement was made of the forthcoming annual convention of the national association at Detroit, Mich. Mr. Magnus said that considerable interest had been taken by the national officers in the prospect of holding the 1927 meeting in Richmond, but it was too early to reach a decision.

Action was taken to insure that the chairman of the division be a member ex-officio of all standing committees.

Discuss Suction Couch

C. W. Baker opened the Question Box by making an inquiry as to whether a suction press was a necessary equipment with a suction couch. It was agreed generally that providing the suction couch had a good pump a press roll was unnecessary. The use of a No. 8 Nash Hytor pump, 100 H. P. was recommended. The use of a suction press was said to be especially hard on felts. The use of a Huyck jacket was considered good practice. One of the members said that he never used a dandy roll except when a 50-lb. paper was being made, and it was advised to stick to a Millspaugh suction roll, as otherwise the mill might be buying a lawsuit. The use of a Vickery felt conditioner was strongly recommended as a means of lengthening the life of felts and increasing production. The first conditioner ever applied on a felt was put there by Mr. Vickery himself at the mill of the Albermarle Paper Manufacturing Co.

Mr. Baker spoke in high praise of the Farnsworth system of drying which he said had now been thoroughly perfected. Mr. Farnsworth was credited with knowing more about the theory and practice of paper drying than any other man in the industry.

Before the meeting adjourned, C. W. Baker invited the members to hold their next meeting at Big Island and offered a personal contribution of $100 to defray hotel expenses.

Philip S. Chadwick, who represents the Chapin & Gould Paper Co., manufacturers of writing papers of Springfield, Mass., in the metropolitan territory, is now located in new offices in Room 613 of the Vanderbilt Building, 132 Nassau street, New York.

Connecticut Valley Supers Meet at Holyoke

Local Division Makes a Fresh Start with Every Promise of Becoming the Banner Organization

SOME forty members and visitors attended a rejuvenation meeting of the Connecticut Valley Division of the American Pulp and Paper Mill Superintendents' Association at the Nonotuck Hotel, Holyoke, Mass., on Saturday, November 14. President Edward T. A. Coughlin, of the national association, was present and took charge of the proceedings, after divisional chairman Thomas Rogan, of Fitchburg, Mass., had opened the meeting and explained that illness had prevented him from giving during the past year that close attention and supervision to the affairs of the division which were so necessary to its successful operation. He acknowledged his indebtedness to Charles N. Mooney, vice-chairman, for taking over many of the duties of the chairman during the time he was incapacitated by serious illness.

C. H. Kent, secretary-treasurer, presented a verbal report of the work of his office, saying that he had been unable to get all his papers together on account of a somewhat sudden and unexpected notice to attend. He reported a balance of $62.40 in the treasury and mentioned that particulars had been given to Mr. White, who also held part of the sum mentioned, the remainder being on deposit in a local bank.

Before giving up the chair, Mr. Rogan suggested the appointment of a nominating committee to propose officers for the ensuing term, at the same time urging the adoption at this meeting of a definite program of activities. To serve on the committee, he appointed William B. Clements, John J. White and Roger McCorkindale, who then retired for the purpose of naming a slate.

Addressed by National President

President Coughlin was then introduced and addressed the gathering, expressing pleasure at its size and representative character, there being representatives present from the principal paper manufacturing firms of the district. The Smith Paper Co., of Lee, Mass., sent Charles N. Mooney, Frank J. Mooney and Edward H. Gibbons; American Writing Paper Co., Ed. J. McDonnell, William Clements, William McKay, Seth Williams, James Geraghty, Adam Wilkinson, Henry Cassidy, Erl Esty, Andrew Barnett and Maurice Whalen; Chemical Paper Manufacturing Co., Charles A. Tifft and Michael Kelly; Parsons Paper Co., Roger McCorkindale; Whitmore Manufacturing Co., John J. White and James F. Bartley; Windsor Locks Paper Co., Thomas F. Nixon; Crocker-Burbank Co., Thomas Rogan; Taylor Logan Co. Association, Joseph Bario; Newton Paper Co., Forbes Wood; National Folding Box Co., L. W. Weiser; Kalbfleisch Corporation, C. H. Kent; Paper Maker's Chemical Co., L. A. Thompson; Holyoke Wire Co., George Dougherty; Knox Woolen Co., A. G. Caldwell.

Share Your Knowledge

Mr. Coughlin exhorted those present to share their knowledge, as this was the spirit back of the organization. He said he desired to emphasize this and to impress forcibly on every member that the Superintendents' Association was not a social organization. Holyoke was his birthplace and former home and he took a natural pride in the success of the local division of superintendents, so he hoped all "excuses and alibis" would be wiped off the slate during the ensuing year and a good constructive program be carried out. He recited the accomplishments of the Ohio division which met regularly on the last Saturday of each month.

The Southeastern division, organized in Richmond, Va., early in the year, was singled out by Mr. Coughlin as a real progressive organization. At the first meeting of this division, a great compliment was paid the members by the attendance without exception of every manager or president of a company in the district.

Referring to a feeling entertained by some superintendents that there was nothing new to be gained by holding meetings owing to difficulties experienced in getting new speakers to address them, Mr. Coughlin said it was not always the new speaker that counted most, but it was rather the discussions which followed the papers that were of value. In these discussions, information and ideas were exchanged and points brought out that were highly profitable to all. This had been proved by results obtained in Ohio, Michigan and elsewhere.

Urges Advance Program

He urged the adoption of a definite schedule of meetings through a program committee or by a board of governors who should map out a program for several months ahead. He said the Connecticut Valley Division had a greater number of prospective members to draw upon than was the case with many other districts, and with numbers anything was possible. In Kalamazoo, a division had been started with a group of ten men, who were afraid of each other when they first came together, but who now constitute a splendid organization of real papermakers who had been at the game for twenty or more years.

Warns Against Too Much Sociability

He sounded a note of warning against too much conviviality at meetings. Indulgence in liquors must be absolutely avoided, since it is not for hilarious enjoyment that the meetings are held. It should not be forgotten that the company's time and money were being spent when men were away from home and sobriety should be the rule. If the men should bear this in mind, their division would grow and prosper.

New Officers Elected

Mr. Coughlin received a round of applause on taking his seat, but he did not sit long, for, as stated, retiring chairman Rogan announced that he would turn over the meeting to the national president, and Mr. Coughlin accordingly took the gavel and called for the report of the Nominating Committee. William B. Clements responded by submitting the following names for officers to serve during the ensuing year, and they were elected by one affirmative ballot cast by Mr. Rogan.

Chairman, Charles N. Mooney, Smith Paper Co., Lee, Mass.

Vice-chairmen, Charles C. Stewart, Collins Manufacturing Co., North Wilbraham, Mass.; Ed. J. McDonnell, American Writing Paper Co., Holyoke, Mass.; L. E. Weiser, National Folding Box and Paper Co., New Haven, Conn.

Secretary-treasurer, Charles A. Tifft, Chemical Paper Manufacturing Co., Holyoke, Mass.

The chairman of the nominating committee then put in nomination for a board of governors the officers of the division and the following members: Thomas Rogan, Fitchburg; John J. White, Holyoke; William B. Clements, Holyoke; Joseph Bario, Holyoke; Michael Kelly, Holyoke; Roger McCorkindale, Holyoke; Edward Driscoll, Lee.

Mr. Mooney, chairman-elect, was introduced and thanked the gathering, but pleaded for 100 per cent co-operation on the part of all members. With a board of governors functioning, it would surely be a success, and with the active co-operation of all members it would become the banner organization of the country.

Work of the National Organization

President Coughlin then unfolded some details of the work of the national association. The next annual meeting would take place at Detroit, Mich., June 4, 5 and 6, 1926. The annual conventions were growing better and better each year. At the last convention in Niagara Falls, 300 superintendents were present.

He spoke of new committees and activities. A Committee on Vocational Education had been formed with representatives from every division to co-operate with the technical associations of the United States and Canada, as well as a Committee on Conservation of Waste for the study of white water problems, with H. W. Server as chairman. Like the Committee on Vocational Education, this committee was to be nationwide in scope. He expressed the hope that the board of governors of the Connecticut Valley Division would appoint appropriate committees to co-operate with the national committee.

An Immediate Problem

There was, he said, one immediate problem confronting the Connecticut Valley Division and that was the adoption of a date and hour for monthly or bimonthly meetings. He asked for a discussion of this.

John J. White took the floor and advocated holding meetings once a month on Saturdays. He added, however, that it might be best first to try out the sentiment of the members, and in the meantime leave the calling of the next meeting to the discretion of the board of governors.

Chairman-elect Mooney thought a meeting every two

months would be right, but he would be willing to abide by the decision of the board of governors. Seth Williams and Roger McCorkindale agreed in favoring bimonthly meetings. Mr. White returned to the subject by suggesting to the members that when word of a meeting of the board of governors was given out, each should consider himself invited and sit in, because it would not be a silk-stocking affair, but a plain B. V. D.

The Tifft Process

Charles A. Tifft was then asked to present his paper on the Tifft process, which was next on the program. He prefaced his account of the process with a grateful acknowledgment of the honor conferred on him by election as secretary-treasurer and pleaded for the utmost co-operation by the members. He said that in Groveton, N. H., where he first described his process, he had confronted a strange audience, but he was now at home among friends. He then proceeded to elucidate the workings of his invention for delivering stock from the Jordan engine to the machine chest, as described and illustrated in THE PAPER INDUSTRY for November, on page 1264. As at Groveton, a lengthy but interesting discussion of the process ensued. Ed. J. McDonnell, newly elected vice-chairman of the division, asked if the process eliminated the machine chest and was answered in the negative. It was evident, Mr. McDonnell remarked, that with the gate situated at the fan pump box, the operation of the Jordan would be taken out of the hands of the beater engineer, which Mr. Tifft told him was the case, but it was not necessary for the machine tender to touch the gate oftener than once in twenty-four hours.

Proposed Joint Meeting

On motion of Mr. Clements, a rising vote of thanks was passed to Mr. Tifft for his interesting contribution to the proceedings. This done, Mr. Clements called attention to a proposal to hold a joint meeting of the Northeastern Division and the Connecticut Valley Division early next year. It had been suggested, Mr. Tifft said, to hold the joint meeting in Holyoke, sometime in the spring, probably in May. After a contribution to the discussion by John J. White, who mentioned the possibility of holding a triangular convention of Northeastern superintendents and Connecticut Valley superintendents with the New England Printing House Craftsmen which would meet in annual session at Springfield, Mass., on May 18, 1926, the whole subject was referred for consideration and action to the board of governors.

Successful Banquet

At the banquet in the evening, John J. White was installed as toastmaster by Chairman Mooney. Mr. White is a past master in the art of conducting afterdinner speaking and entertainment and he succeeded in providing a merry evening for all. Community singing was led by Norman Dash, who formed one of a male quartet and succeeded in making everybody sing or join in choruses until enthusiasm was at fever heat.

Progress of the National Organization

While awaiting the appearance of Michael L. Cramer, who was on the program for feats of legerdemain and card tricks, President Coughlin was called on for a speech and he responded with a review of the progress of the national association since its organization six years ago. He said the object of the association and its divisions was twofold—to inform the superintendents themselves and to bring to the mills information that could not be otherwise obtained. He spoke of the informing character of the discussion that took place at the afternoon sitting as an example. He also mentioned the invention of a new beating engine by a man who he said was "wholly unconnected with the paper industry, except, perhaps, in an allied way," which impressed the reporter as a rather dubious compliment to a man who has been actively connected with the pulp and paper industry for more than a quarter of a century.

President Willson Speaks

S. L. Willson, president of the American Writing Paper Co., who occupied a prominent place at the head table, was introduced in a happy manner by the toastmaster, who said he seldom scanned a trade paper of the industry without finding mention of Mr. Willson as presiding officer or toastmaster, all of which testified to Mr. Willson's belief in the value of association work and the virtue of the printing craftsmen's slogan, "Share your knowledge." He expressed the appreciation of the superintendents for the compliment Mr. Willson had paid them in appearing at the banquet and then asked him to say a few words.

Bill Nixon Was Responsible

Mr. Willson got an ovation when he arose to respond. He said he was present at the invitation of "Bill" Nixon, who had coached him as to what to say—and "if the speech is good, it's Bill's, and if it isn't, why, I've forgot what Bill told me to say."

Because he was at the head of a large paper firm, it would naturally be supposed that he had benefited from close contact with those under him and he did attribute whatever success was his to the sharing of problems with others. This was where trade associations like the superintendents' association had scored and he was pleased that so many superintendents of the American Writing Paper Co. were members of it. When superintendents get together and exchange ideas and information, they benefit not only their own mills, but the trade as a whole.

In closing, Mr. Willson expressed regret at the absence of the managers of his coarse and fine paper mills, W. L. Nixon and Leon M. Yoerg. Nixon was on a sick bed and Yoerg had probably been detained at one of the mills working over some color problem, for that was the type of man he was, always ready to sacrifice pleasure for work.

After talks by L. D. Post and Thomas J. Keenan, the diners joined in singing Auld Lang Syne and the banquet was over.

Meeting of the T. A. P. P. I. Committee on Training in the Industry

The meeting of the T. A. P. P. I. Committee on Training in the Industry was called to order at 10:00 A. M., October 23, 1925, at the Ten Eyck Hotel, Albany, N. Y., by Chairman Griffin, with the following members present: M. L. Griffin, J. A. Moyer, R. T. Haslam, J. O. Mason, H. F. Obermanns, L. M. Yoerg, H. G. McDowell and C. E. Libby.

Introductory remarks were made by Mr. Griffin in which he explained the purpose for which the committee was appointed. He stated that the committee should carry on the work of the Committee on Vocational Education which it succeeded, especially in encouraging the establishment of correspondence and class instruction among the workers in the pulp and paper industry. He spoke of the work which had already been organized under the direction of the Extension Division of the University of Wisconsin, the Institute of Industrial Arts, and the Division of University Extension, State of Massachusetts. He asked Dr. Moyer to explain the work of the last institute.

Massachusetts University Extension

Dr. Moyer gave a synopsis of the work organized by the Division of University Extension in the State of Massachusetts. He stated that class work was well under way in his state with a class of 100 men already organized in Holyoke and a class of 60 men in Dalton. He spoke of the difficulties which some men encountered in the elementary work, especially with the subject matter contained in the first two volumes of the vocational textbooks. He stated that they advised all of their students who did not have a high school education to get some elementary training in fundamental subjects in the evening high schools of the state. Dr. Moyer stated that they would like to get the vocational textbooks, **Manufacture of Pulp and Paper**, split up into small paper covered pamphlets containing about 100 pages each as this would greatly benefit those men who could not readily afford to purchase an entire cloth-bound volume at one time. Mr. Griffin promised to take up this matter with the publishers of the textbooks and see what could be done towards obtaining these small pamphlets.

Hammermill Paper Company Plan

H. F. Obermanns described the educational work being carried on in the mills of the Hammermill Paper Company. He stated that this mill had a training class for foremen which

Meet Modern Standards With Modern Equipment

E-Z Opener Bag Co. Improving Plant

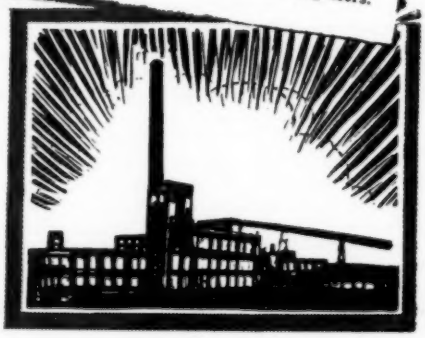
The kraft mill of the E-Z Opener Bag Co., at Braithwait, La., was shut down on January 24, to make a number of changes in their machine room, which, it is expected, will increase the production from 28 to 35 tons daily.

The wet end of the machine is being remodeled and a Belo removable Fourdrinier installed. The drying capacity will increased by the addition of ten more dryers, while new Be reels are also being installed. The drying economy wil increased by the installation of the Ross vapor absor system.

Northwest Paper Co. to Add Machine at Cloquet

[FROM OUR REGULAR CORRESPONDENT.]

CLOQUET, Minn., March 9, 1925.—The Northwest Paper Company has purchased a new paper machine from the Beloit Iron Works and will also install additional beaters. An addition to its present mill here is being constructed to house the new machine. Jacobson Engineering Company, Minneapolis, Minn., is the engineers.



MODERN paper making is becoming more and more a science. Steady progress has been made in late years in simplification, plant efficiency, personnel training and safety measures. The personal element has been modernized to meet present-day standards and the mechanical equipment has been modernized in even a greater degree.

Pick up your trade paper and you'll find item after item like the ones illustrated here, showing how the modern idea has taken hold, how the NEW BELOIT FOURDRINIER is being installed in widely separated mills in all parts of the country to meet the demand for modern equipment and standards.

Sixteen orders for the NEW BELOIT, of which four are re-orders, is an accomplishment that has been realized in a short space of time. The new idea has taken hold. But it's the production records of these plants that is the BELOIT'S best advertisement, for here concrete data is available to show a greater increase in production at a greatly lowered cost of operation.

We live in a modern age. We belong to an age of accomplishment. And the NEW BELOIT FOURDRINIER is meeting the problems of today and tomorrow.

Get the facts. Ask for Bulletin No. 9

See pages 318 to 321 in the 1925 Paper and Pulp Mill Catalogue

The NEW BELOIT FOURDRINIER

Beloit Iron Works — **Beloit, Wis., U.S.A.**

SINCE 1858 BUILDERS OF PAPER, BOARD MILL AND CONTAINER PLANT MACHINERY

was organized and directed by the Pennsylvania State Department of Education. He also stated that 38 men in their mills had registered for courses with the Institute of Industrial Arts, four of whom had already completed the course, one of these four being the first man to complete the entire course offered by the institute. The local high schools, under the supervision of the State Department of Education, had organized classes for teaching the work covered by the first two volumes of the vocational textbooks. Mr. Obermanns stated that arrangements had been made whereby the tuition charges for the correspondence courses were paid directly by the company and deducted from the weekly pay envelopes of the men. When a man completed the course satisfactorily the company refunded the entire cost of tuition. It was Mr. Obermann's opinion that one of the greatest problems which had arisen as a result of the correspondence courses was that of showing a proper appreciation on the part of the mill for the efforts of those men who completed the courses. His mill attempted to do this by promoting the men to better positions or if no other position was available the man's wage rate was increased.

Pusey and Jones Company

H. G. McDowell stated that the Board of Education of Wilmington, Del., provided classes for boys in the plant of the Pusey and Jones Company, who were interested in the study of paper making. The results to date indicated that boys who had had a high school education were much more successful in completing the work of the course than those who had not had such opportunities.

Laurentide Company

J. O. Mason described the methods employed in training men in the mills of the Laurentide Company. He stated that most of their employees were French Canadians without much fundamental education and for this reason the introduction of technical training courses had been rather limited. Practically all of their foremen were trained by actual experience in the various mill operations. Mr. Mason expressed the opinion that if the mills could obtain men with proper fundamental education it would be a relatively simple matter to teach them the special processes of pulp and paper making.

Massachusetts Institute of Technology

Prof. R. T. Haslam gave a brief synopsis of the chemical engineering curriculum at the Massachusetts Institute of Technology with special reference to the work of the fifth year which the student spends in residence at several industrial plants where he is given the opportunity of making direct application of his engineering knowledge in special plant tests and investigations. Two months of this time are spent at the plant of the Eastern Manufacturing Company, South Brewer, Me., and other mills in this district. Prof. Haslam stated that the institute course was a general course in chemical engineering which emphasized fundamentals and did not attempt to train men for any particular industry. He stated that many graduates of the course entered the paper industry but had a tendency to remain unsettled for a few years and finally to desert paper making for some other industry. While the Massachusetts Institute of Technology gave no instruction in paper manufacture and had not planned to do so, it was Prof. Haslam's opinion that such courses might be organized if there was a sufficient demand for them and the opportunity was presented of being of more service to the paper industry.

American Writing Paper Company

L. M. Yoerg spoke of the difficulties encountered in the employment of high school graduates or college men in fine paper mills owing to fluctuating business conditions which made it impossible to offer them continuous employment. He described the vocational class now being conducted in Holyoke under the supervision of Miss Helen U. Kiely. He believed that the work covered by the vocational textbooks could be presented successfully only as class work under the supervision of a competent instructor. Mr. Yoerg agreed with Dr. Moyer that the subject matter in the first two textbooks was presented in a way which made it much too difficult to be understood by the average mill man who had not had a high school education. Dr. Moyer suggested that the committee take some action relative to obtaining a revision of Volumes I and II of the vocational textbooks. Chairman Griffin appointed Dr. Moyer and Mr. Yoerg to a committee to formulate a request to have Volumes I and II of **The Manufacture of Pulp and Paper** series revised with the object of simplifying the subject matter to an extent that they may be more readily understood by the average mill employee.

New York State College of Forestry

Prof. C. E. Libby described the college course in pulp and paper making offered by the New York State College of Forestry. He stated that the course was essentially a course in chemical engineering in which the specialized courses dealing with the various chemical industries had been deleted to allow the substitution of fundamental courses in Forestry, Wood Technology, and the specialized courses in Pulp and Paper Manufacture. About 90 per cent of the graduates of the course entered the paper industry and remained there. He stated that one of the big problems faced by the college consisted in locating mills where the students could obtain good practical experience during their summer vacations. Another problem consisted in formulating, in co-operation with the mills, a program of training which would attract graduates of the course to operating positions in the mills rather than to the technical laboratory positions. Prof. Libby stated that while the college was not giving any correspondence or class work in paper making for mill employees, it would be willing to do so if funds could be secured for financing such work. He mentioned correspondence with the Department of Education of the State of New York relative to obtaining financial support for such a program but stated that nothing definite had resulted from these negotiations.

Chairman Griffin appointed a sub-committee consisting of Mr. Obermanns, Mr. Yoerg and Mr. Mason to formulate a suitable program of training for young men entering the paper industry with the object of learning the operations and preparing for executive positions.

Doctor Moyer desired to determine how many men had registered for the three extension courses and the secretary was instructed to secure this information from the various organizations giving such instruction and to check it by a canvass of the larger mills having men enrolled in these courses.

Institute of Industrial Arts

T. L. Crossley, representing the Institute of Industrial Arts at Gardenvale, Quebec, Canada, visited the session of the committee and explained the work of this institution in giving correspondence instruction in pulp and paper manufacture. Approximately 750 men had enrolled in the courses offered by this institute. About 200 of these enrolled students had already discontinued the courses without completing them. The institute has had students complete the course in 13 months. Some mills request that their men be given the privilege of discontinuing the work without further payment on completing a section of the course. This privilege is always granted; in fact the institute does not attempt to forcibly collect fees from students in any case notwithstanding the fact that each student signs a legal contract. The institute furnishes its instruction data to the students either in paper-bound pamphlets containing one section of the course, or in the cloth-bound five volume sets.

Chairman Griffin appointed Prof. R. T. Haslam and H. G. McDowell to act as a committee to formulate a procedure for handling requests for technical information such as those frequently propounded by correspondence school students, the object being to standardize the routine for answering such questions and to arrange a distribution of the questions and replies in such a way that they might benefit the industry at large.

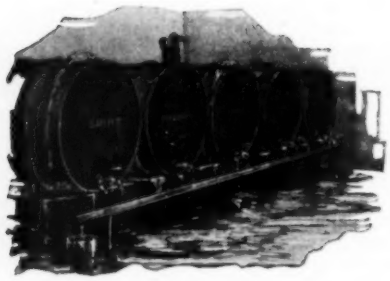
Mr. Griffin proposed that each of the agencies offering correspondence school instruction be requested to furnish the committee with a complete set of its instruction sheets and examination questions. The secretary was instructed to secure this information.

The meeting adjourned at 2:00 P. M.

Contract has been awarded for the erection of a one-story addition to the Pearl City Division of the American Tissue Mills, South Hadley, Mass., estimated cost to be in the neighborhood of $40,000.

Auditing Oil "Systems(?)"

IT is no more important to audit your books, about now, than to audit your oil storage system—or lack of it, as the case may be!



Oil costs money—won't cost less in 1926. But lack of oil—that's what costs most, in burned out bearings, in shut-downs, in men's time wasted and lost.

Bowser oil storage systems—there's one that's right for every sized plant—will save you money by conserving oil, making it convenient, eliminating waste, averting the oil-fire hazard, and warding off shut-downs.

Bowser engineers will, without obligation, tell and show you how to store oil right. To enlist their assistance, address Dept. 3, please.

S.F. BOWSER & COMPANY, Inc.
LUBRICATION ENGINEERS AND MANUFACTURERS
FORT WAYNE, INDIANA, U.S.A.

News Briefs from Washington

REPORTS from the Consuls and Commercial Attaches of the Department of Commerce received during the past month emphasize the following conditions in the paper industry abroad:

Demand for Swedish Pulp Strong.—Commercial Attache T. O. Klath at Stockholm reports that about 60 per cent of the 1926 production of sulphite pulp and 80 per cent of the sulphate have already sold on contract, prices remaining firm. Sales of newsprint for 1926 delivery continue brisk with none available for export this shipping season. The demand for chemical pulp is steady and more than half the 1926 production has been sold in advance, current prices having been generally accepted. The paper industry experienced a period of dulness during the summer but orders are now increasing. Some apprehension is, however, evidenced over the possible loss of the English, French and Belgian markets by reason of the tendency of those countries to increase import duties, also by the imposition of a higher import rate on sulphate wrapping paper into the United States and the preference granted to English and Canadian paper into Australia and South Africa. The market for newsprint continues excellent.

Consul Dawson at the same point states that the United States continues to lead in 1926 purchases of Swedish pulp, prices ranging from $2.95 to $3.05 for strong sulphite and from $3.00 to $3.05 for kraft pulp ex dock.

Change Requested in Latvia Customs.—According to Commercial Attache C. J. Mayer, the Latvian custom authorities have been requested by the paper mills to abolish the existing import duty on unbleached chemical pulp heretofore imposed at the instance of the Schlock mills. This mill now produces sufficient paper to export as well as to supply the local market and is obliged to import pulp for its machines. The measure was originally designed for protection rather than for fiscal purposes and as it is now no longer a necessity it is probable that alterations in the present tariff will be made in the near future.

Belgium Paper Prices Increase.—Consul Harrington at Antwerp reports the outstanding feature of the Belgian paper industry during September and early October as being a 10 to 15 per cent price increase on all paper manufactured in the country. This was the result of advanced prices on wood pulp brought about by the appreciation of the Norwegian crown and the depreciation of the Belgian franc. The increase resulted in accentuated domestic and export demand, and large contracts were placed by buyers who expected further price increases.

Scandinavian and Finnish newsprint and wrapping papers continued to arrive in large volume, but imports of these from Germany decreased, with an expectation that larger quantities will arrive in October and early November.

The Belgian mills state that the price increases noted are not in proportion to increases in the costs of raw materials, and further advances in price are expected. Prospects in general in the industry are distinctly favorable.

French Market Offers Opportunities.—Consul D. C. Woods at Paris reports that late estimates place the annual newsprint output of the French mills at 110,200 short tons in the making of which practically no native timber is used. Most of the pulp entering into the manufacture of French newsprint is obtained from Sweden, Norway, Finland, and Germany. The French consumption of newsprint paper is more than double domestic production and the resultant competition between the native article and that imported keeps the prices of the two practically equal. Imports amount to about 138,000 short tons annually, prices averaging 15 pounds sterling per metric ton ($66.48 per short ton) c. i. f. Rouen. No American newsprint is received, although if current price quotations can be met by American producers, a market could probably be developed. The standard weight is from 48 to 50 grams per square meter, the widths in greatest demand being from 171½ to 173 centimenters for presses printing double sheets and from 86½ to 88 centimeters for single width presses.

Domestic Demand Increases in Germany.—Consul Haeberle at Dresden states that in October the newsprint and other mills manufacturing printing paper were very busy owing to a marked increase in demand manifested late in September. Exports are unsatisfactory and export prices remain the same for both chemical pulp and paper despite a recent forced wage increase. The money situation also seems to be causing some anxiety.

The Commercial Attache at Berlin, however, reports that the German paper industry continues to operate at a high level of production, mills in many instances declining export orders in order to confine themselves to domestic business. The tendency during the last several months has been toward an increase in the sale of paper products and a reduction in the sale of paper itself.

Prosperous Situation in Finland.—Consul J. F. McGurk, at Helsingfors, Finland, reports that the market for all paper and pulp products remains firm, with stable prices and active demand for all except fine papers. Prices for mechanical pulp show an upward tendency with a decrease in quantity exported as compared with 1924. Exports of other kinds of pulp have increased appreciably over an equivalent period of 1924.

Assistant Trade Commissioner Kekich at Helsingfors also reports that a modern pulp plant having a yearly output of 30,000 tons is planned for construction in the near future at Karhula, Finland.

New Specifications for Purchase of Paper Towels

The Bureau of Standards recently completed a thorough investigation having for its object the development of specifications for the purchase of paper towels by the Government. The basic raw materials used range from repulped waste paper to chemical pulp made specially for the purpose of obtaining the peculiar properties of absorbency, strength, and cleanliness. As the treatment given to procure strength lessens the natural softness and absorbency of the fiber, it was found that towels possessing a medium degree of both were satisfactory. The minimum quality of towels acceptable for general use should fall within the following limits: Weight, not over 42 lbs. on a basis of 25 by 40/500; time of absorption, not over 180 seconds; bursting strength, not less than 8 points.

Pulpwood Consumption and Wood-Pulp Production

In conjunction with the Forest Service, the Bureau of the Census has just issued its "Pulp-Wood Consumption and Wood-Pulp Production" for the year 1924. The figures as compiled show 5,768,082 cords of pulp wood consumed in 1924 as against 5,872,870 in 1923. The average cost was $16.07 per cord f. o. b. mill. Of this quantity, practically 3,000,000 cords was spruce, 70 per cent of it being of domestic origin. The total pulp production for 1924 was 3,723,266 short tons, of which 1,643,283 was mechanical groundwood, 1,336,551 sulphite, 440,697 soda, and 302,735 sulphate. The States of Maine, Wisconsin, New York, and Pennsylvania top the list in that order as pulp-wood users, while the same States, except that Wisconsin and New York are in reverse order, are the greatest producers of pulp. Maine, Massachusetts, New York, and Vermont show a steady decline in pulp production over the past three years.

The comparatively small decrease in the total quantity of pulp wood consumed in 1924 as compared to 1923 is not of particular significance. The points at which these decreases occurred are, however, important indicators, as they took place in the older pulp-producing regions and hence indicate a tendency to shift producing plants to newer territory having larger available supplies of raw material.

REED SPAFFORD

Pulp Screen

WHAT DOES YOUR **POWER** COST YOU

UNHEARD OF LOW **POWER** PER TON

HALF **POWER** SAVED

VERY LARGE CAPACITY

VERY LIMITED FLOOR SPACE

OFFERED ONLY AFTER MANY MONTHS OF CAREFUL DEVELOPMENT

Improved Paper Machinery Company

Nashua, N. H., U. S. A.

New England News

December 1, 1925

Paper Shipments to Reach High Levels

A significant statement of the current business conditions in the New England paper industry is contained in a recent report to the New England Shippers Advisory Board, by P. J. Dowd, manager of the Holyoke Traffic Bureau and a prominent New England paper traffic official. Speaking of the printing paper, rag paper and related grades, he stated that business conditions of these companies as expressed by their freight movements showed a decided improvement during recent weeks. The past three months showed a great increase in shipments over last year and it is confidently expected in Holyoke, according to Mr. Dowd that further increases will result. For three past months, carloadings in Holyoke were 11,021, against 10,015 for the same period during the previous year, practically 10 per cent increase.

The grades of paper represented in his survey are produced to the extent of 1,572 tons daily in New England and Holyoke manufactures 654 tons of this total every 24 hours.

Furthermore, Mr. Dowd's close contact with carloading and traffic movement at Holyoke makes his other statement interesting and encouraging; to wit, that the holiday trade of the paper converters in the Holyoke district has been unusually good and that papeteries and tablets have been turned out in big volume. He stressed to the Committee the importance of quick delivery on Holyoke papers, particularly on the lines of the converters in connection with the holiday trade.

Warns of Gateway Congestion

Incidentally, the foregoing traffic opinion from an authority is supplemented by a strong letter which has been sent to member mills, by the New England Paper & Pulp Traffic Association urging members to advise their customers of the desirability of covering for more than immediate requirements, and also advising paper manufacturers themselves to cover well ahead on raw materials, with particular reference to raw materials derived from sources outside New England. As pointed out by the Association, New England has not had a severe winter since 1920. As a matter of averages, and aside from the many predictions by alleged weather prophets, a hard winter may be in store this year. Moreover traffic movement, as shown by carloadings is greater than ever before in the history of the country and the number of cars passing through the New England gateways, in particular, is taxing the classification yards at the western New England junction points to the limit.

Snow and ice, a sudden resumption of anthracite operations entailing a heavy movement of coal cars with priority rights, and New England gateways might be tied up tighter than a square knot. With consumers of paper, and paper mills themselves operating on the basis of hand to mouth purchases such a condition holds out possibilities for trouble according to the N. E. P. & P. T. Association whose 26 member mills consist quite largely of book paper manufacturers who supply large publications west of the Hudson as well as in New York and Long Island.

Coal is the most essential raw material which is derived from outside sources. Mills are urged to maintain a goodly supply of steam fuel or while the tidewater market supplies most of New England, embargoes at the gateways would inevitably strengthen all coal prices materially.

Boston Paper Trade Association

The Fall meeting of the Boston Paper Trade Association was held at the Exchange Club, Boston, on the evening of November 19th. There was an attendance of about 100. President William B. Stevenson presided. An excellent dinner was served, following which the gathering listened to interesting and instructive addresses by Judge Elias Bishop of the Massachusetts Superior Court, on the handling of criminal cases, and by James Gordon Gilkey, D.D., pastor of the South Congregational Church of Springfield on the Problem Confronting the Modern American Homes. Dr. Gilkey is a famous New England divine whose speeches are broadcast fortnightly from Springfield.

Three new members of the Association were elected. These included: Frank Juckett, of Old Colony Envelope Co., proposed by Norman Harrower, and W. W. McLaurin and John McLaurin of the McLaurin-Jones Co., proposed by Frank Cummings.

Tileston & Hollingsworth the Hosts

On Tuesday evening, November 24th, 300 members of the Boston Club of Printing House Craftsmen were entertained by Tileston & Hollingsworth Co., at a real old fashioned New England turkey dinner which was served in the finishing room of the company's mill. One of the best caterers of Boston had charge of the dinner and accomplished musical talent rendered vocal solos. General Manager Arthur V. Howland spoke briefly after the dinner, tracing the history of the company from the establishment of the Boies & Clark mill in 1765 through to its successors the Tileston & Hollingsworth Co., of 1801, and the four generations of Hollingsworths who have controlled its destinies to this day. The regime of the latest of these, Amor Hollingsworth which commenced in the early part of the present century has seen the company's great growth and its rise to importance in the book paper trade of Boston and New England where 80 per cent of its paper is sold. A policy of selling direct to printers has been adopted in New England, although west of the Hudson, the company sells its paper through merchants.

Following the address of Mr. Howland, an inspection of the mill was made, including the new stock rooms, the two new Rice, Barton & Fales Fourdriniers, and the new million pound paper warehouse where all paper is stored on skids for the most expeditious handling.

Incidentally, the meeting served the company with an opportunity to announce two new lines: Thinopake—a new thin sheet for general direct mail advertising work, calculated to minimize postage, and Crinoline Bond, a new sulphite paper, exceptionally clear white, and available in colors to be sold at a price competitive with the most widely advertised sulphite papers on the market.

Old Mill Changes Hands

The Contoocook Valley Paper Co., of West Henniker, N. H., has been sold to the Monadnock Paper Mills, of Bennington, N. H. Both properties are located in the Contoocook River Valley and on the same branch of the Boston & Maine railroad which should facilitate joint operation. Main offices of the Monadnock Paper Mills are at 201 Devonshire Street, Boston. Major Arthur J. Pierce, owner of the Monadnock Paper Mills negotiated the purchase of the upriver concern. Walter Connor who has been connected with the Henniker mill for 40 years or more and for the past few years treasurer and majority owner retires under the change in control. The Contoocook Valley Paper Co. is a very old concern, and had in its employ a superintendent, John Connelly, connected with it for 36 years and a foreman, Frank Brady, who had been an employee for 53 years. Both of them remain in their previous capacities as do a majority of the other mill employees.

The products of both mills will be handled from the Boston offices which are in charge of George Andrews, sales manager. Major Pierce, owner, has left on an extended winter vacation cruise to Africa.

Paper Merchants Hold Annual Meeting

The annual meeting of the New England Paper Merchants Association was held at the Harvard Club of Boston, on Thursday evening, November 12th. Practically every wholesale paper house in New England was represented. The same slate of officers were re-elected, including Hubert L. Carter, president, and Charles A. Esty, 1st vice-pres., Royden Loring, second vice-pres.; Edward A. Eaton, treas.; Floyd H. Blackman, sec'y, and Clifford K. Judd, auditor; executive committee for fine papers, H. E. Waite and Carleton Knight; for wrapping papers, Mathew O. Byrne and S. C. Burgoyne; representatives to the Board of Directors of the National P. T. A.,

FORM C-15

MOORE

"SPLENDID PERFORMANCE"

At the mill of the Algonquin Paper Company, Ogdensburg, N. Y., where newsprint paper is made on a single machine at the rate of 97 tons a day steadily over a period of 30 days, at a speed varying from 810 to 1,000 feet a minute, the sheet trimming 198 inches—a week's run of paper without a break was not unusual and that as much as 106 tons of paper were turned out daily at intervals, 97 tons being the average over a period of one month.

Splendid Performance at Algonquin

On the Saturday afternoon of our visit at this mill, the machine was running at 810 F.P.M., when suddenly came an order to reverse the second press felt and the sheet was broken while the change was made. The operation was timed and it took exactly eight minutes to turn the felt and start the sheet again on its way through the dryers to the winder, a rapid piece of work, considering the width of sheet and the speed at which the machine was running—the fine performance of the machine which often runs for days at a speed anywhere from 800 to 1,000 feet a minute without a break.

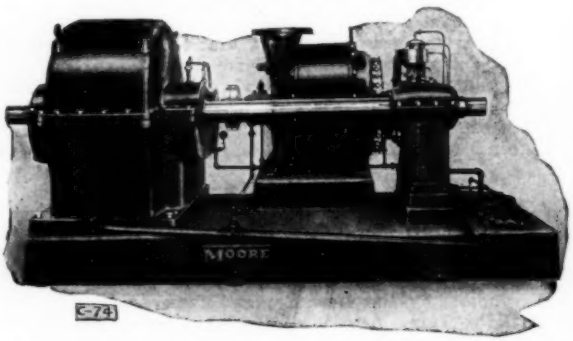
Reprint from "Paper Industry," Aug. 1925

Offices in all principal cities

MOORE STEAM TURBINE CORPORATION
WELLSVILLE, NEW YORK

In Canada
Ontario and East: General Supply Co. of Canada, Ltd., Ottawa
Manitoba and West: Darling Bros., Ltd., Montreal

Without perfect Turbine Drive with its refined governing this "Splendid Performance" would not have been possible.



650 horsepower Moore, variable speed, double end paper machine drive installed at the plant of the Algonquin Paper Company, Ogdensburg, N. Y.

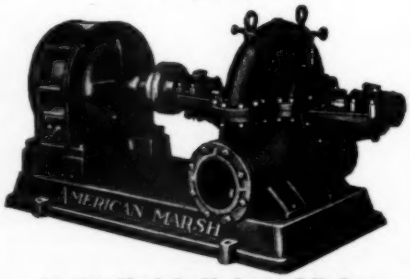
35 Years' Experience

American-Marsh Pumps
Make Good in Every Type of Service

Where durability and reliable performance are essential, American-Marsh pumps make good. In every capacity they deliver the highest type of service at low cost. Whether the load be heavy or light, rising gradually or suddenly, American-Marsh pumps are dependable, day in and day out, year after year. In points of service and economy they are a good investment. Guaranteed by a company of unquestionable reliability.

AMERICAN-MARSH PUMPS

Centrifugal
Simplex
Duplex



American-Marsh Double Suction Split Case

Makes a Difference

The Line Includes

- Wet and Dry Vacuum Pumps
- Hydraulic Pressure Pumps
- Condensation Pumps
- Jet Condensers
- Boiler Feed Pumps
- Air Compressors
- Deep Well Engines
- Bilge Pumps

Send for Bulletins you are interested in

AMERICAN STEAM PUMP COMPANY

Chicago Office
926 Monadnock Block

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New York Office
17 Battery Place

See page 434 in the 1925 Paper and Pulp Mill Catalogue

W. B. Stevenson for fine papers, and Arthur W. Blackman for wrapping papers.

The meeting received reports from the Chicago convention but held in abeyance formal approval of the 1,000 count 25x40 basis for fine papers to supplant ream count. They approved the work of the National Association regarding standardization of paper bags, and proposals for standardization of toilet paper and tissues. Regular luncheon meetings of the Fine and Wrapping Division of the New England Association will be held throughout the winter—the Fine Paper group to meet at Rich's Grill under the management of Ed Porter, and the Wrapping Group at the Chamber of Commerce dining rooms, under Floyd Blackman.

A new illuminated sign of huge proportions reading Fitchburg Paper Co. Mill No. 4 greets the eye of every motorist on the roads about Fitchburg. The company is about to install a similar sign facing the B. & M. tracks.

The Pepperell Card & Paper Co., of Pepperell, Mass., recently acquired through receivership proceedings by Frank Carpenter of the Amoskeag has been enjoying unusually prosperous conditions since its new management secured control. They report full time operations and orders for many weeks ahead at the same rate.

New Freight Rates Announced

New freight rate has been announced by the New England Freight Association on wood pulp from Lincoln, Me., to New York City. The rate is for export only. It is recalled that a recent statement of the Eastern Manufacturing Co.'s Boston bankers announced that a "moderate export business was being fostered on sulphite pulp by Eastern in connection with foreign demand for American pulp in the Rayon industry." The present rate which was secured at the instance of the New England Paper & Pulp Traffic Association is the result.

The New England Freight Association also announces an import rate of 19c per 100 lbs. on imported woodpulp from Boston, Mass., to Rumford, Me., home of a Continental Paper & Bag Co. mill and the Oxford Paper Co.

Big Parker Young Timber Purchase

It is understood that negotiations have been completed whereby the Parker Young Co., of 131 State Street, Boston, with mills at Lincoln and Livermore Falls, N. H., becomes the owner of a 22,000 acre tract of timberland at Waterville, N. H.

The Parker Young Co. is to construct a saw mill near the tract, and the better spruce will be sawed while the smaller tracts including the waste will go to the pulp mill at Lincoln, N. H. The Parker Young Co. owns in addition to this new tract, 300,000 acres of timberland in Vermont, New Hampshire, Maine, Florida and Washington.

New England Paper & Pulp Traffic Association is waiting for a hearing date to be set in its complaint against the Boston & Maine railroad for excessive pulpwood rates from Quebec points to East Ryegate, Vt. (Ryegate Paper Co.) The Association will challenge violation of the 4th section i. e. long and short haul clause. The case will be heard by an I. C. C. examiner.

John Smith McElwain

John Smith McElwain, 97 years of age, said to be the oldest resident of Holyoke, and certainly the Dean of New England's paper industry even though retired, died at the home of his son, Henry S. McElwain, 209 Linden street, Holyoke last month.

Born in Middlefield, Mass., March 17, 1828, he worked hard at various occupations when a boy, finally drifting into Holyoke in 1867. He became connected with the original Parsons Paper Co. at that time under the management of J. C. Parsons. His quickness at acquiring paper manufacturing knowledge won responsible positions for him in short order and he started on a career that is said to be second to none in the development of Holyoke, Mass., as the fine paper center of the world. While with Parsons, he was treasurer and manager of the Valley Paper Co., steering that concern through several perilous years. In 1879, with his son and other associates he incorporated the Nonotuck Paper Co., in Holyoke which soon acquired the mills and properties of its neighbor, the Symns and Dudley Paper Co. In 1892, the Linden Paper Co., was taken over by Mr. McElwain, reorganized and put on a sound basis. Shortly after this, all these mills together with many others were merged into the American Writing Paper Co. An authority on rag paper manufacture, and a recognized leader of the trade, his fame was nation wide during his active years with the industry and has survived to this day. Aside from his paper affiliations, he was known as a staunch Republican, though seldom in politics as a candidate; director of the City National Bank of Holyoke and the Third National of Springfield; trustee of the Mechanics' Savings Bank, and interested in all civic movements for public welfare.

The funeral services were held at the Skinner Memorial Chapel in Holyoke with a very large attendance. Pall bearers included many old paper trade veterans. They were Joseph A. Skinner, William F. Whiting, Leonard Titus, Richard Chapin, Henry Houston, and W. G. Dwight. Rev. Dr. Wicks of the Second Congregational Church officiated at the services. Burial was in Ashleyville Cemetery, West Springfield.

Severe weather has severely hampered boats carrying pulp and pulpwood from Nova Scotia and New Brunswick to Atlantic Coast ports. A boat loaded with pulp for Chester, Pa., was recently hauled into Boston harbor after being battered by a severe gale, while a barkentine from Parrsboro, N. S., to Norfolk with pulp was driven on a bar off Machias Bay, Me.

The legal difficulties concerned with the sale of the Bath Iron Works, marine equipment and paper mill machinery manufacturers, have caused the management to take precautions against deterioration of the equipment this winter in case the plant is idle for several months which is said to be the present prospect. The New York interests are disputing title.

Mortan C. Tuttle Co., construction engineers of Boston, who have specialized to a great extent in paper mill renovation and construction have obtained quite a reputation in this field outside New England. Their latest contract is for the building of a machine room extension 39 by 361 feet for Jessup & Moore Paper Co., of Philadelphia, at their Augustine Mills, Wilmington.

Opposition of western Massachusetts manufacturers against the proposals to construct a huge storage reservoir on the Ware River basin for the Metropolitan Boston water supply is growing more acute. Several paper companies are understood to be actively opposed to the designs of the Metropolitan water commission.

Dennison Mfg. Co., large paper converters of Boston, with mills at Framingham, Mass., have increased their capital stock by 10,000 second preferred shares making the total outstanding capitalization $11,000,000.

Mr. Asplund Talks at Salesmen Luncheon

At the regular Monday luncheon of the Salesmen's Association, held at the Hotel Belmont, New York City, on November 30, Mr. G. Asplund, special representative of the Swedish Government, gave an interesting talk on the pulp and paper situation in Sweden. He outlined the growth and development of the industry, its present production and distribution and the trend of the industry in that country. The salient feature of his talk indicates that Sweden will continue to be a greater factor in the pulp industry than in the actual manufacture of that pulp into paper.

It was the consensus of opinion that Mr. Asplund gave a most graphic picture of the industry of today and pointed out what could be expected from Sweden in the near future.

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The Paint Question

Your search for a paint that will stand up under moisture, chemical fumes and heat conditions comes to an end when you begin using BITUMASTIC SOLUTION. It gives enduring protection to metal buildings and roofs, structural steel, tanks, pipes, stacks, boiler fronts and breechings and other steel surfaces. It has a fine glossy finish that lasts. The sooner you start using BITUMASTIC, the sooner your worry over the paint question ceases.

The most convincing argument in favor of the use of BITUMASTIC SOLUTION is the performance of the paint itself. We are willing, therefore, to send a sample can, without charge, to interested executives and engineers.

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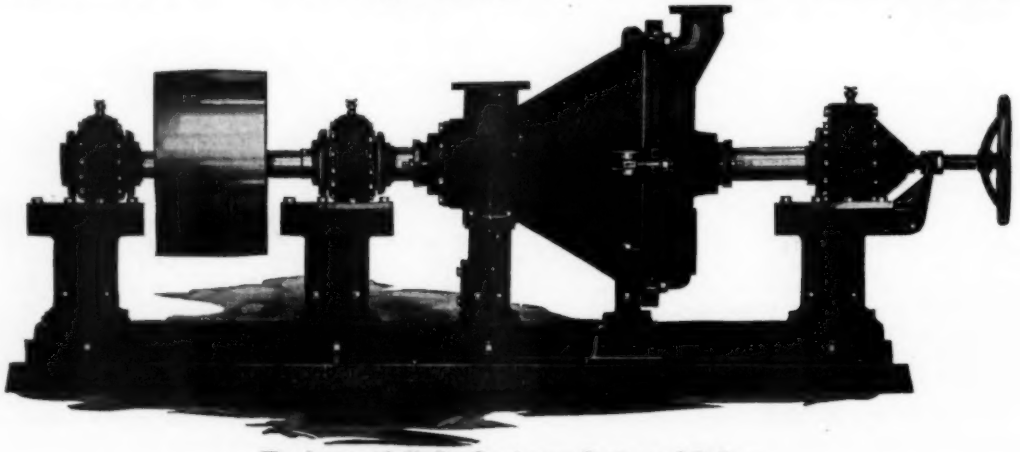
Direct to paper machines



The Improved Claflin Continuous Beater and Refiner

CLAFLIN units take the most difficult stock direct from the cooker and prepare it for the paper machines without regular beating machines. If Claflins are used with tub beaters, they shorten the time 25 to 50 per cent. Can be driven by belt or direct drive.

See full description on page 350, 1925 Paper and Pulp Mill Catalogue

HERMANN MANUFACTURING CO. — **Lancaster, Ohio**

Waterous Engine Works Co., Ltd., Brentford, Can., Licensed Mfrs.

Northern New York News

December 1, 1925.

New St. Regis Machine in Operation

The new 156-inch Fourdrinier machine of the St. Regis Paper Co., built by the Bagley & Sewall Co., was started last month and is operating at the rate of 1,000 feet a minute. The machine is driven by a General Electric steam turbine.

Many advantages are claimed for the new hook-up. There are no belts connecting the turbine with the motors and the machine. There is a direct connection from the turbine generator to the eight motors which operate the various sections of the machine, thus eliminating one hazard of the paper mill. An asbestos hood has been built to cover the entire machine. Besides being fireproof, it catches all the heat rising from the machine and, through the Briner system which has been installed, the heat is carried off and used in another part of the mill.

The company has a larger machine than this one, but it is not as fast or as powerful. The capacity of the new machine is 75 tons a day and work was at once started in getting out the paper for the directories of the New York Telephone & Telegraph Company, an order which will take several weeks to fill.

The new machine closely follows the completion of a new pulp mill by the St. Regis Co. In this new brick building are 28 pulp grinders, divided into seven units of four machines each. Each unit is operated by a 2,000 horsepower motor and the 28 grinders turn out 250 tons of pulp a day.

The old pulp mill has been taken over by the International for power development.

Fibre Can Company Organized

The Smith-Lewis Fibre Can Corporation, with its principal plant at Lowville, Lewis county, has just organized The company will unite Central and Northern New York capital in the manufacture and sale of cylinder fibre containers for liquids. The company will make a specialty of spiral and convolute wound containers.

Syracuse capital interested in the new enterprise are owners of the Smith-Lee Company, Oneida, manufacturers of paper pulp milk bottle caps. They include Wilbert L. Smith, president of L. C. Smith & Bros. Typewriter Co.; Hurlbut W. Smith, vice-president and treasurer of the typewriter company and president of the Smith-Lee Co. Northern New York capital is represented by Harry S. Lewis, president of the J. P. Lewis Co., of Beaver Falls, which owns and operates a high grade board mill and owns a supply of pulpwood available for many years.

The Beaver River Power Co., controlled by the Lewis interests, recently installed a new 10,000 hydro-electric power plant which will furnish power to the new concern.

Several hundred thousand dollars worth of special machinery for the manufacture of containers has been purchased and is being installed. It is expected that production will start Jan. 1. The Beaverland Corporation will be merged with the new company.

Thomas W. Gardiner, aged 73 years, an expert pulp man, died in the city hospital in Watertown, Nov. 17. Mr. Gardiner was employed by the Carthage Sulphite Pulp & Paper Co. for several years as a buyer and inspector and was considered to be an authority on pulp and pulpwood.

Paper mills along the Black River have been hampered more or less during the last month on account of high water. During a portion of the month, all records for autumn high water were broken and it was as high as at any time during the spring. Plants were obliged to cut down production on account of it. Northern New York has been visited by a long rainy period during the fall, and in the woods snow to the depth of several inches fell early in the fall.

Ensign Robert W. McCormick, of Watertown, son of James C. McCormick, of Knowlton Bros. Co., has resigned from the United States navy and has accepted a position as salesman with the Alfred Bunge Trading Company of New York, dealers in pulpwood. Mr. McCormick graduated from the United States naval academy a few years ago. His resignation becomes effective Dec. 10.

International Split-up Approved

Stockholders of the International Paper Company have approved the proposal of the management for a readjustment of the company's capital stock. The common stock of the company will be changed from shares of $100 par value to shares without par value and the number of common shares will be increased from 500,000 to 750,000. The preferred stock will be increased from 500,000 shares to 750,000 shares of $100 par value.

Of the 500,000 shares of common stock at a par value of $100 a share, 250,000 shares are outstanding. The management intends to exchange 250,000 shares of the new no par value stock for the outstanding common stock on the basis of share for share, and to offer an additional 250,000 shares of no par value common stock to present stockholders on a share for share basis at $50 a share. The sale of this stock will give the company an additional $10,000,000.

About $4,000,000 of this new money will be used to acquire an interest in the New England company, a holding company for the New England Power Corporation, and a part will be used to develop further the company's paper mills, especially the plant on the Gatineau River in Canada, which is being modeled along the lines of the famous Three Rivers mills. Development of these properties is expected to reduce the company's cost of production.

Employees of the International are being offered seven per cent preferred stock at $90 a share, the size of the subscription depending on salaries, and may be paid for on the installment plan.

Attorney Delos M. Cosgrove, representing the defendants, has asked for a change of venue in the case of the McGraw-Hill Corporation and the United Publishers Corporation against Frank L. Moore and others, to recover $2,000,000 for alleged misrepresentation growing out of the sale of the Newton Falls Paper Company to the plaintiff. Decision has been reserved.

There is considerable speculation as to the fate of the Black River Regulating Board as a result of the recent election in New York state. A constitutional amendment was ratified by the voters, consolidating the various state departments, and there is a possibility that the regulating board may be consolidated with the public works board.

George W. Sisson, Jr., of the Racquette River Paper Co., Potsdam, has been named chairman of the permanent committee in New York State to make effective the results of the New York State Wood Utilization conference held in Syracuse recently. W. F. Backner, of the American Forests Products Corporation is vice-chairman. It was brought out at the meeting that by methods now available the drain upon the forests can be reduced two-ninths, which nearly equals the present growth of timber over the entire forest area.

Prospects Slight in Carthage Receivership

The Carthage Sulphite & Paper Co. will be unable to pay its general creditors before the receivership, it was shown in Federal court at Albany, by Francis E. Cullen, attorney for Charles E. Norris, receiver. The Carthage concern came into Federal court for a determination as to whether priority is to be granted to a $92,000 Federal income tax claim incurred in 1917 and 1918 before the receivership and still unpaid.

Judge Cooper held that the question was one between the government and the trustee under the mortgage. Mr. Cullen pointed out that Mr. Norris has on hand $76,864 in cash belonging to the company, out of which the expenses of the receivership and prior liens must be paid. It is Mr. Cullen's contention that the 1917 and 1918 income tax claims are outlawed unless the court holds that a waiver signed by Guy C. Jones, secretary and treasurer of the company after the re-

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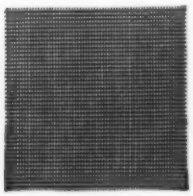
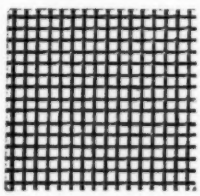
FOURDRINIER WIRES



In Brass, Bronze and phosphor bronze, widths up to, and including 250 inches.



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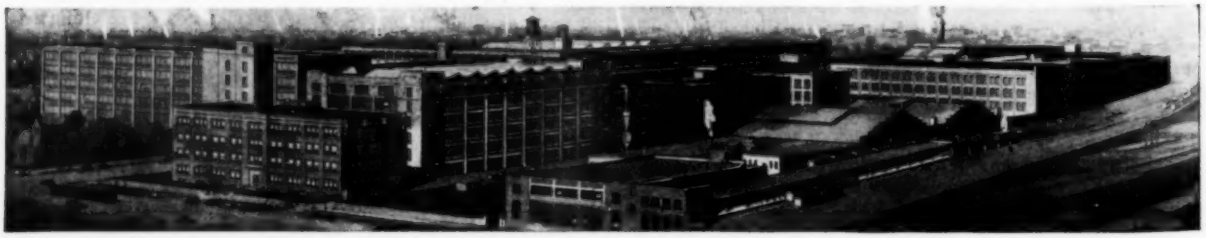

ceivership of the company had been established is valid. It was shown at the hearing that the Carthage company cannot hope to realize much from the sale of its Quebec properties. The sale price is expected to be between $30,000 and $50,000 and administration expenses will eat up most of this.

Three new filters are being installed by the West End Paper Co. of Carthage, for the purpose of improving the water supply system of the mill. Up to the present, the mill has been using the city water for drinking purposes and the unfiltered river water for the beaters and machines. The new system will provide a better quality of water and will produce a better grade of paper. The filters were purchased from the Cochrane Corporation, of Philadelphia. It is expected that they will be in operation by Christmas.

Union Opens Branch in Canada

The headquarters of the International Brotherhood of Paper Makers, in Albany, announces that a branch of the union has been opened in Three Rivers, Quebec. This is the first time in the history of the organization that a distinct Canadian branch or bureau has been opened. Frank P. Barry, of Ballston Spa, first vice-president, has been sent to Three Rivers.

The union is doing its best to organize the men of the non-union mills in order that eventually all the mills in Canada will be on an equal footing, insofar as the number of working days a week is concerned. The mills that are unionized are operating on a six-day week basis, and the heads of these mills claim that they are at a disadvantage in competing with the unorganized mills.

Taggart Bros. Improving Herring Mill

The Herring plant of the Taggart Bros. Company is another of the Northern New York mills to be entirely electrically equipped. The Herring mill was sold by the St. Regis Paper Company to the Taggart Company about a year ago. Since the change in possession, the mill has undergone extensive improvements under the direction of M. J. Cornell, resident manager. The Jones beaters are operated by General Electric individual motors. The electrical energy is supplied from a station adjacent to the mill, erected and equipped by the Power Corporation of New York. This station develops 6,000 H. P., and a constant flow is maintained through the medium of the Stillwater reservoir. The mill has been equipped to manufacture extra tough paper sacks on which patents are pending. For the new stock, the 96-inch paper machine has been changed to 52 dryers in place of the original 76. This machine is steam driven, but the rest of the machinery is of electric drive exclusively. The mill is running with three shifts day and night, employing more than 100 men, and it is expected that this number will be doubled. Stock is now being made up, to be made into bags later. By Jan. 1 the wood pulp building will have been converted into a rotary boiler room for the cooking of rope stock.

De Grasse Mill Given Reprieve

The Degrass Paper Company, of Pyrites, has been granted an additional six months in which to appeal the findings of Referee Dolan in the action brought by Murray Dodds. Several weeks ago, the referee awarded the plaintiff $1,000 damages for injury done to his land by the discharge of refuse from the mill, and ordered the DeGrasse Paper Company to discontinue the practice of dumping refuse into the river after Jan. 1, 1926. The referee granted an extension of six months while an appeal is being made. The defendant intends to carry the case to the highest court in the state.

It was reported that if the company was permanently restrained from dumping refuse into the river, it would shut down, holding that the cost of building a filtration system would be prohibitive. There have been several reports that the International Paper Company was negotiating for the purchase of the property.

Ninety-six thousands cords of pulpwood were handled during the navigation season by the Ogdensburg Pulp Wood Co. The season has now closed and the boats have gone into winter quarters. About 75,000 cords were unloaded at the terminal and the remainder at the Algonquin Paper Co. docks. Last year the company handled about 85,000 cords.

Wood pulp will be the basis of a synthethic fur which will be placed on the market within a year, according to Dr. Edwin E. Slosson, author and member of the faculty of Columbia University, who spoke on "Creative Chemistry" at Glens Falls a few days ago. He said that innumerable products may be compounded from wood pulp and that twice as much synthetic silk is being sold in the United States than natural silk.

Richard Gray, of Watertown, erecting man of the Bagley & Sewall Co., left last month for Kenora, Ont., to install a machine in the mills of the Backus-Brooks Company. The machine, which is the largest in the world, will make a sheet of newsprint 245 inches wide. The construction of the machine was started last March and the machine will be in operation by Christmas.

Two and a half million feet of hardwood will be taken out of the Racquette River country from land of the International Paper Company this winter. The operations will be near Beechwood Inn, above Sevey's. John Davignon of Tupper Lake has been awarded the contract for cutting the wood. The timber will be delivered to the Oval Wood Dish Company's plant at Tupper Lake. There will be a big cutting on the Sisson-White tract, the pulp logs being delivered at Potsdam for the Racquette River Paper Co. mills.

United Paperboard Earnings Running High

According to reports in financial circles of New York, present indications are the United Paperboard Co. will enjoy its best year since 1923, with earnings running materially higher for the first five months of the present fiscal year, which ends May 31, 1926, than in the same months of 1924 and 1923. A dividend of one-half of one per cent on the common stock was declared on July 1, the first payment since 1920. It is stated that the common stock of the company may shortly be placed on a regular quarterly dividend basis, with $1.50 the basis prominently figuring in the discussion in financial circles. The directors are said to have hesitated making such a distribution, even in the face of good earnings, owing to conditions in the board industry which often cause wide fluctuations in earnings from month to month. For this reason it is impossible to accurately forecast the annual earnings until near the close of the fiscal year.

Among the appointments announced recently by the International Paper Co., are those of J. V. McNamara and J. P. Parsons as assistant sales managers. Mr. McNamara has been with the International Paper Co. for more than 15 years. Mr. Parsons joined the sales department of the company two years ago.

Import Committee Secures Higher Valuations

Complaint of American manufacturers of unfair competition of foreign envelope linings, handled through the Import Committee of the American Paper Industry, has resulted in an investigation which showed that the complaint was justified, and the value at which the paper was offered for import was increased over 100 per cent.

Roofing felts from Czecho-Slovakia have been heavily advanced in value by a decision just published by the Customs Service, upholding the contention of the Import Committee which claimed these importations were being undervalued. Foreign felts were sold for delivery at about $74 in the United States. Investigations showed that this was too low in the face of foreign prices.

Under the findings of the General Appraisers who tried the case, it will be impossible to sell these felts in the United States at prices lower than $95 to $100 per ton, and the reappraisement of the felts already imported means this additional cost to the importer on the product already sold by him.

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Made in Brass and Phosphor Bronze in All Sizes

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Mills equipped with Simonds Circular Saws provide longer runs at less cost, because Simonds Saws hold their edge longer and cut fast. Simonds Saws have the steel, temper and tension.

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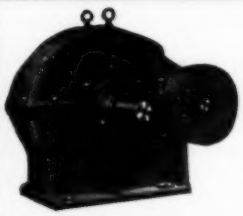

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Herringbone Gear Reductions

They increase production, save labor and decrease wastage on Calenders. Write for literature. Special Machinery—Couplings—Gears.

FAWCUS MACHINE CO., Pittsburgh, Pa.
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British Correspondence

The British Paper Trade

It is reported that the members of the British paper industry are keenly interested in the inquiry of the Board of Trade Committee into the claim put forward by the makers of wrapping paper for a duty on imports. There are certain classes of wrapping paper, however, which English mills can hold against foreign competition. Some of these are dependent upon the textile industries, and there is no doubt that the paper mills have been affected to a great extent by the depression in the cotton trade. During the war, many mills turned over to the production of kraft paper, which has predominated on the English market for at least twelve years; but, with the arrival of the "slump," heavy foreign competition commenced, to the detriment of the British trade. General conditions in the wrapping section have not improved.

Some improvements have been shown, however, in the industry generally, for which the drop in the bank rate and the brighter reports of conditions in the staple trades are assumed to be responsible. Some of the larger esparto mills in the north have their output booked for some weeks ahead. Several of the less busy manufacturers are reported to be cutting their costs in search of overseas trade; but except for a few cases, esparto prices on the home market are steady. Supplies of raw material are not too plentiful, and comment has been caused in some circles by the news that papermakers in the United States are participating in the esparto traffic.

The **Times Trade Supplement** states in this connection: "As a matter of fact, something like 10,000 tons of Spanish esparto have been sold to America, and ships have been chartered for the service. It is in favor of American importers that there is always a demand for cargo by boats returning to their home ports. On the other hand the grass must be reduced to pulp if a regular shipping service is to be maintained, and it is questionable whether this will be a commercial proposition. The expert view is that it will be too costly. Other countries, notably France, Spain, India, and Holland have for some time been paying more attention to esparto and its possibilities; but what they have done so far does not materially affect the situation."

Wood free mill prices are firm, several northern mills have recently received fairly substantial orders for paper for educational uses, and some improvements in quality have been made, although the prices have remained unaffected. Competition for business in fine papers is particularly acute, and several firms are concentrating on the improvement of their selling organizations. More or less the same applies to the hand paper mills.

Wood pulp prices have hardened within the last month, practically all grades having advanced about five shillings to ten shillings a ton. Similar increases have been noticed in the dry mechanical pulp prices. Norwegian agents are showing caution owing to the fluctuations in the rates of exchange, while the Finnish merchants are booking business well ahead. It is pointed out in the British trade press that while the principal immediate cause of the recent advance in Canadian exchange, which resulted in the shipment of gold to the Dominion from both London and New York, appears to have been the increased exports of wheat before the close of lake navigation, it should not be overlooked that Canada's enormous exports of pulp and paper have been responsible more than anything else for restoring the Canadian dollar to parity with gold, and maintaining it practically at par for more than two years.

A Canadian correspondent of The Times reports that it is expected that reduction in the price of newsprint paper from $70 to $65 per ton will bring about the closing of some of the high cost paper mills in the United States and cause their business to be transferred to Canadian producers. He points out that despite warnings of over-production, expansion continues, and that the International Paper Company, Ltd., is going ahead with its plans for a 400-ton newsprint mill in Chelsea on the Ottawa River, which is expected to cost about $5,000,000.

The Port of London Authority, the great organization which controls and develops the sea-borne trade of London, has just commenced the publication of a magazine in which are to be featured the many-sided activities of the P. L. A. and the riverside industries of London. In the first number, it is rather significant that the first industry to be described in the series is the paper industry. The various mills, which are situated on the banks of the Thames are described, and among them are the mills of Messrs. Edward Lloyd Ltd., of Sittingbourne and Kemsley; the Imperial Paper Company's Mill at Gravesend, The Daily Telegraph Mills at Dartford; Reed and Company's new mill at Aylesford, and the new two-machine mill of W. V. Bowater and Sons, Limited. The Thames Board Mill, the biggest of its kind in Europe, is also mentioned, as being situated on the Essex side of the Thames, opposite the Gravesend mills on the Kent side.

The writer goes on to point out that it is significant that all the paper mills built in Great Britain during recent years have been in close proximity either to the Thames or to the East Coast, and he shows that particularly for the London market the situation of the paper mills within easy reach of the consumers' machines or store warehouses is a first consideration, and that the mills thus served by London's river have considerable advantages over those less favorably placed, and it is significant to realize that all the great paper mills constructed within recent years have been, with one exception, on the Thames.

The British Industries Fair of 1926 will take place in London and Birmingham, from the 15th to the 26th of February, 1926. These dates preceeded those of the Fair to be held in Leipzig, Germany, by about fourteen days.

New Catalogs, Booklets, Etc.

The American Society of Mechanical Engineers, 29 W. 39th St., New York City.—"Production Control in the Newsprint Industry" is the title of a paper in pamphlet form, being a print of the address of George D. Bearce, member of the Society, presented at the annual meeting in New York, November 30 to December 4, 1925.

Andrews-Bradshaw Co., 530 Fourth Av., Pittsburgh, Pa.—A paper read before the Engineering Society of Western Pennsylvania by Grant D. Bradshaw entitled, "Concentration in Boilers," is presented in booklet form. Many diagrams and formulae are included.

Cochrane Corporation, Philadelphia, Pa.—A bulky catalog has just been issued which describes feed water heaters of all types and their application in detail.

General Electric Co., Schenectady, N. Y.—Bulletin GEA-235 has just been issued, describing the General Electric steam turbines rated at 500, 600 and 750 K.W. The general principles and advantages of steam turbines are discussed, and sections and steam path diagrams are shown.

Kalamazoo Vegetable Parchment Co., Kalamazoo, Mich.—Fifty sample letterheads, printed on K.V.P. bond in various weights and colors are mailed enclosed in a unique folder. This portfolio is supplied the distributor, who in turn passes it on to the customer.

National Lime Association, 918 G St., N. W., Washington, D. C.—"Water Softening" is the title of a booklet which treats the subject in a non-technical way wherever possible.

News Print Service Bureau, 342 Madison Av., New York City.—Publications of the Bureau are free to the members. Often there are calls for copies from outside sources, and a limited supply is available for this purpose. Following are the names and charges on each: Forest Utilization in Europe, by C. A. Schenck, price $3.00; Cost Accounting for Logging Operations, by G. A. Ware, price $10.00; Cost Accounting for Newsprint Paper Mills, by C. W. Halligan, price $10.00; Operating Reports for the Paper Mill and Steam Plant, by G. D. Bearce, price $5.00; Monthly Bulletin and Monthly Chart, price $50.00 yearly.

Alfred J. T. Taylor, Bank of Hamilton Bldg., Toronto, Can.—"The Ruths Steam Accumulator" is the title of a 76-page booklet which is a reprint of Mr. Taylor's paper presented before the Institution of Engineers and Shipbuilders in Glasgow, Scotland, on October 6th.

United States Trade Mark Association, 32 Nassau St., New York City.—The October Bulletin of this Association is devoted to a discussion of S. 2679, the bill for the amendment of the Trade Mark Law.

A Jordan Engine for Every Purpose

BULL DOG GRINDERS

The illustration shows a typical installation of Bull Dog Grinders in one of the leading Roofing and Floor Covering mills.

These machines are especially adapted to the roughest class of work, such as the manufacture of roofing, building, sheathing, hardware, heavy wrapping and carpet lining papers, saturating and deadening felts.

A list of users and particulars concerning the Bull Dog Grinders mailed on request.

The Noble & Wood Machine Company
HOOSICK FALLS, N. Y.

BARRE GRANITE IN PRESS ROLLS

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If your Paper Machines are not equipped with Press Rolls of BARRE GRANITE you are not getting the results that you should get, for it is a recognized fact that granite rolls are much superior to any others and Barre Granite the best of all. Let us tell you about them.

Jones Brothers Company

BARRE, VT. **BOSTON, MASS.**

Canadian Section

Montreal, December 1, 1925.

No Uneasiness Concerning Expansion in Newsprint Industry

For some time past there was apprehension in various quarters that the very large projected increase in Canadian newsprint production might glut the market and result in a very serious disturbance in the industry. But now there seems to be a general realization that a pronounced change in the newsprint industry has been displayed during the last few weeks. It is realized that imports from Europe to the United States, which have not been large, are being materially reduced this year and that in 1926 it is estimated that only 75,000 tons will be imported into the United States from the other side, as compared with 200,000 tons in 1924.

The opening to Canada of the Australian market, which should absorb some 35,000 tons, and the demand for 30,000 tons from South America, are factors with an important bearing on the situation. Combined with this, the normal increase in United States consumption for 1926, namely, about 125,000, indicates that a large proportion of the new newsprint tonnage will find an immediate market.

This has been reflected in orders received by manufacturers, it being understood that most, if not all, of the bigger Canadian mills have already contracted for their entire 1926 production. These facts are further borne out by the recent report of the Newsprint Service Bureau of New York, which states that publishers' stocks on hand are at a lower level than at any time during the last three years.

Riordons First Made Groundwood

In reply to an inquiry from George Carruthers, president of Interlake Tissue Mills, with reference to the origin of groundwood in Canada, Carl Riordon, of Montreal, made the following reply: "My father's recollections is that the first groundwood was made at East Angus, Que., a year or two before we made about a ton or a ton and a half a day. We started making it at Merritton somewhere between 1867 and 1869, with what was called an "Ames" grinder; the mill was located at Lock 16, on the old Welland Canal, and made about three tons a day. Shortly after starting this mill we put in a second mill at Lock 18, using Voith grinders. I think the first grinders we put in had an iron or steel rotor, not a stone. I suppose we were the first to make and use groundwood fairly extensively in Canada."

Steam Equipment Firms Merged

An announcement of interest to pulp and paper mills in this country has been made to the effect that, with a view to creating an organization of broad scope, in both general sales and engineering service in steam, by hydraulic and industrial plant equipment, the interests of the Taylor Stoker Co., Ltd., of Canada, and the Cleaton Co. (Canada) Ltd., both of which concerns have been doing business in Canada for over ten years, have now been merged into the newly-organized Affiliated Engineering Companies, Ltd.

Arrangements have almost been completed whereby the new company is in position to handle through its personnel, all of whom are experienced Canadian engineers, the products of both boiler and engine rooms of a number of leading British, American and European manufacturers, as well as other items suited for general plant usage.

In addition, the new company has arranged with F. A. Combe, an engineer of wide experience and reputation in Canada, to act for it in a consulting capacity to the end that all products sold by the new company shall be properly coordinated in accordance with the best engineering practice suited to this country.

F. S. B. Heward is president; R. E. Cleaton, vice-president and secretary; C. L. Cushmore, treasurer, and M. Alpern, chairman of the board. Branches will be established throughout Canada.

Rights to Voith and Warren Grinders Controlled by One Firm

Announcement has been made of the formation of a new company to have control of the rights of manufacture in Canada and Newfoundland for both the Voith caterpillar grinder and the Warren continuous grinder. Heretofore, these rights were separately controlled by Waterous Engine Works, Ltd., of Brantford, and Charles Walmsley & Co. (Canada), Ltd., of Montreal, respectively. The Continuous Wood Grinder Co., which is the name of the new organization, is backed by the two concerns above-mentioned. It is hoped that the pulp and paper industry will benefit from the improvements in grinder design that are sure to result from this union of manufacturing interests. There are some who may object to such a merger on the ground of monopoly, but it is generally felt that there is no occasion for alarm on any such grounds.

Record Newsprint Output in October

The Canadian newsprint mills once more reached a new high total in their production figures for October over any previous record. In turning out 137,506 tons of newsprint, the Canadian mills produced more than they had done in any previous month in the history of the industry, and incidentally showed an increase of nearly 13,000 tons over September, and of nearly 17,000 tons over August production.

The October record is also significant in having been ahead of that of the United States mills, whose production was 135,225 tons. October production also established a new record in standing above the United States production for the second month in succession this year, something that had never before happened, although Canadian mills in three other months earlier in the year produced more than the United States mills, a condition that had never happened in any previous year.

It would seem probable now that from this time on Canadian mills will show higher production than United States mills.

QUEBEC

Memorial to the Late Sir William Price

An impressive ceremony took place at Kenogami on November 8th, when a memorial tablet was unveiled to the memory of the late Sir William Price, who lost his life in a landslide at Kenogami on October 2, 1924.

The event was the armistice memorial service in the St. James Anglican church. The scene was impressive, two uniformed returned men standing guard over the tablet with arms reversed, during the whole ceremony. Rev. A. E. Gillies-Wilken, who delivered the sermon, spoke feelingly of the great loss that had been sustained in the untimely death of Sir William Price, and paid tribute to the extensive work that he had accomplished for the whole northern section of the province, adding that the late Sir William had fallen in action, as had the sons of Quebec, who laid down their lives during the great war.

Lady Price and her sons, Major John H. Price and A. C. Price, were in attendance at the service, together with a large delegation from the Price mills at Kenogami.

Succeeding the late J. B. Duke, and thus allowing the original huge power development plans in the Saguenay district to be carried out, Mr. G. G. Allen, a New York financier, closely connected with the late tobacco king's activities, has

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been elected president of the Duke-Price Co., it has been announced by Mr. J. H. Price, vice-president of the company.

Large Power Development Nearing Completion

The Isle Maligne section of the power-harnessing project of the Duke-Price Co. will be completed by the middle of February, which means that from that part of the Grande Décharge work some 480,000 horsepower will be available. Delay had been encountered on portions of the work, due to the force of the current, which was sweeping before it all obstacles, including tons of rocks. Engineers have been able to deal with this unexpected difficulty, and with the most modern installation have succeeded in mastering the situation.

Illustrating the extent of the task facing the engineers is the fact that in the course of the last month, in order to blow up some huge rocks which were interfering with execution of the work, six carloads of dynamite, valued at $33,000, were used at one time, doing in a second work which would have taken years to carry out with other methods.

While preliminary work has been carried out at Chute à Caron already, where nearly 800,000 horsepower are to be developed, Mr. Price recently announced that some of the [illegible] to be delayed until next spring.

now [illegible]

Big Power Line in th[illegible]ay Dis[illegible]

Another phase of the latest Duke-Price industrial project in Northern Quebec was entered into recently when application was made by the Quebec Development Co. to the Quebec Public Service Commission for authorization to construct the most powerful transmission line in the province, carrying a voltage of 154,000 with a temporary length of 17 miles.

According to the plans and specifications deposited with the commission, the power lines will be suspended 58 feet in the air on metal standards set 700 feet apart, and will link up Isle Maligne with St. Leonard, where it will serve the Aluminum Corporation of America, locating at the nearby village of Alma, while later the line will be extended to Port Alfred to supply the industries of that section with power.

Wayagamack Now Turning Out Newsprint

It is understood that the Wayagamack Pulp and Paper Co. has had a good year, for since January 1st the mill has been producing at full capacity on a twenty-four hours a day basis. The market for the company's output of sulphate pulp has considerably improved of late and new uses are more and more being found for kraft paper. These factors should to some extent be reflected in the profits of the fiscal year which has just ended.

The company has made exceptionally rapid progress with its new newsprint mill. The machinery was first ordered about January 1st, ground was broken for the plant on April 1st, and the erection of the machinery began about July 15th. By September 28th the plant was finished and power had actually been turned on to the machines. For the last couple of months they have been adjusted and tuned up, and are now producing regularly.

The Institute of Industrial Arts reports that 120 examination papers were corrected in October. Of these, 66 were elementary mathematics and science papers, 53 were in advanced subjects dealing with manufacturing, and one was a final examination. This record compares favorably with the 90 papers corrected in September—50 elementary, 39 advanced, and one final examination.

Donnacona Paper Co. recently completed the installation of the third Farnsworth Drying System of the improved design recently brought out. This is a greatly simplified apparatus, and is understood to be operating at 6-lb. pressure instead of the 17-lb. previously used, although the machine has been speeded up about 50 feet per minute.

Kilgour Interests Taken Over by Montreal Syndicate

The business of Kilgour Bros. and control of the Canada Paper Co. have been bought by a syndicate composed of Sir Herbert Holt, A. J. Nesbitt, J. H. Gundy, and F. J. Campbell. This is in accordance with stipulations in the will of the late Joseph Kilgour, president of both companies, owing to his having no heir.

The firm of Kilgour Bros., Toronto, is one of the important concerns in the paper trade of the Dominion. Canada Paper Co. has two pulp mills and two paper mills at Windsor Mills, Que., and warehouses in Montreal and Toronto. Mr. Campbell has been general manager of the company for many years, and was one of the "war" presidents of the Canadian Pulp and Paper Association. The company makes writings, printings, wrappings, newsprint, and some specialties.

C. R. Hosmer, of Montreal, is president of Canada Paper Co., and W. H. Langlois, of Toronto, is the new head of Kilgour Bros. The policies of the two companies will remain unchanged.

Having made her maiden trip to Montreal, the SS. Kaponga sailed early last month for Sydney, N. S. W., with a full cargo of paper, amounting to some 1,100 tons. Although the deadweight carrying capacity of this steamer is 3,300 tons, the rolls of paper, which came from three or four different mills in the Province of Quebec, practically filled her holds.

Kipawa Mill Can Supply All American Rayon Plants

A party of rayon producers recently visited the Kipawa mill of International Paper Co. in company with President Graustein. While it has been known that International Paper has been selling sulphite for rayon manufacture, it can be stated that the company now is one of the outstanding factors in the situation and seems destined to become the largest factor on this continent in furnishing the pulp necessary for conversion into rayon.

The Kipawa mill is now producing at the rate of about 52,000 tons of bleached sulphite a year. The total American consumption of pulp for rayon purposes this year is estimated at 50,000 tons against 25,000 tons last year. Thus, International Paper could supply the total United States needs for this year from this one mill. The company does not disclose how much is being sold for rayon, but it can be stated that practically the whole output of Kipawa is going into this product, and demand is greater than supply.

Construction of additional facilities at Kipawa will enable the company to almost double the output at this mill next year, and expansion can be attributed directly to expectations of larger demand for pulp for rayon.

Rumored Merger Officially Denied

A short time ago it was reported from an allegedly reliable source that negotiations would probably be brought to an early successful close, involving the merger of Port Alfred Pulp and of Quebec Pulp and Paper interests, and that probably Price Bros. would also come into the merger. These rumors were promptly given an official denial by the management of Que-

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bec Pulp and Paper Mills, who stated that the rumor constitutes "on the part of its anonymous author, a deliberate attempt to mislead public opinion and possible interested parties."

Belgo-St. Maurice Merger Now Assured

The outstanding event of the month in the pulp and paper industry, and one of the most important that has ever happened is undoubtedly the consummation of negotiations between Belgo and St. Maurice Paper, by which the two companies will be merged under one control and managed by a holding company.

President Biermans of Belgo has sent a circular letter to the shareholders of his company stating that the majority shareholders of the common stock had decided to sell their common shares at $100 per share to a Canadian financial group, and that they had stipulated that every shareholder should have the same privilege, subject to its being accepted before December 1st, and to the shares having been delivered by March 1st, 1926.

President Wallace of Union Bag and Paper, which owns 65 per cent of the common stock of St. Maurice Paper, has announced that the directors of the company have accepted an offer of $100 cash per share of St. Maurice and one share of the new holding company's stock for every five shares of St. Maurice held.

Contrary to previous reports, it has been stated definitely that Port Alfred will not be taken into the merger. It is interesting to note, however, that the 650 tons produced daily by the Belgo-St. Maurice combination, together with the 200 tons daily to be produced by the Port Alfred Corporation upon completion of its newsprint mill next spring, will give the Holt-Gundy interests control over a group producing some 850 tons daily, the second largest output of any group now under a single control.

In view of water power developments expected at points near the Ontario border, the provincial Government of Quebec has altered its terms of lease contracts for the harnessing of such waterfalls, so as to prevent any of the power being exported to the United States. A few recent leases have been subjected to such terms, and in future, until the policy of the prime minister has been altered, a protective clause must be signed by those intending to harness waterfalls in this province.

It is reported that the Leaside Engineering Co., of Toronto, is anxious to go into the pulp manufacturing business in this province, probably in the Lake St. John district.

The total enrolment in the Pulp and Paper School of the Institute of Industrial Arts has now reached the gratifying figure of 768.

3,000 Quebec Fire Rangers Laid Off

With most of the forests of the province covered with several feet of snow at the beginning of last month, the forest fire menace for the year 1925 was over and the 3,000 fire rangers employed by the forest protection service during the summer and fall were laid off during the first days of November.

This year's fire losses amounted to about 20,000 acres of timber, not more than half of which was merchantable timber, as compared with the losses in 1924 when over 200,000 acres of timber fell prey to the flames.

Notice has been given that Canada Paper Co., Ltd., will redeem all of its outstanding second mortgage 30-year 6 per cent gold bonds issued August 6, 1908. The bonds will be paid and redeemed at 105 and accrued interest at the date of redemption.

Lord Rothermere, owner of the Daily Mail and of a large number of other English papers, and chief promoter of the Anglo-Canadian Pulp & Paper Co., recently paid a short visit to Canada and the United States. Anglo-Canadian Pulp and Paper will build mills at Limoilou, near Quebec City, under the direction and management of Frank W. Clark, who is now president of the Canadian Pulp and Paper Association. It is

See page 331 in the 1925 Paper and Pulp Mill Catalogue

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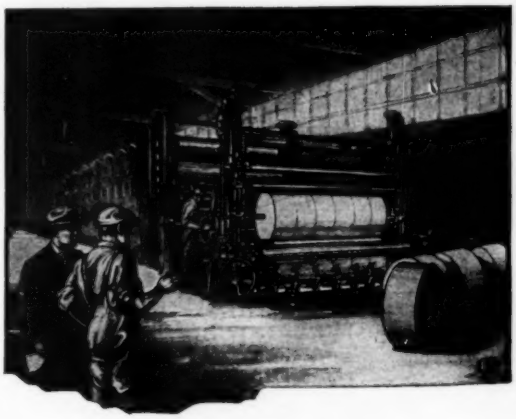

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understood that Lord Rothermere came to get a general impression of the existing conditions in the pulp and paper industry in Canada, and that he conferred with a number of leading business men on the aspects of industry.

Luncheon for Dr. Hibbert

Dr. Harold Hibbert, recently appointed Professor of Industrial Chemistry at McGill University, Montreal, to occupy the chair of Cellulose Technology, has been in Montreal for the past few weeks. At a recent meeting of the executive committee of the Research Section of the Canadian Pulp and Paper Association, Dr. Hibbert discussed some of the more important and pressing problems of fundamental chemistry at present puzzling pulp and paper makers and outlined plans for co-operation between the University and the Industry.

An informal luncheon was given in his honor by the *Pulp and Paper Magazine*, Editor Stephenson acting as host. Other guests were: Dr. R. F. Ruttan, head of the Chemistry Department of McGill; Edward Beck, secretary of the C. P. & P. A.; E. P. Cameron, in charge of the pulp and paper division of the Forest Products Laboratories, Montreal, R. W. Hovey, of Abitibi Power and Paper, and O. F. Bryant, of Laurentide. A number of interesting points in connection with the industry were brought up, and a cordial welcome was extended to Dr. Hibbert, together with the best wishes of those present for the success of the department over which he will preside.

ONTARIO

Progressive Step in Safety Organization

The paper mills of Ontario have again taken a forward step in the organization of safety and health work in this industry. Ontario has a very effective Workmen's Compensation Act, which is administered by a Workmen's Compensation Board. Hitherto the pulp and paper manufacturers have expressed themselves to, and co-operated with, the Board, but not through an Employers' Committee such as is provided for under Section 102 of the Act.

The Committee was formed some little time ago, and consists of P. B. Wilson, vice president of Spanish River Pulp and Paper Mills (Chairman); G. Carruther, president of Interlake Tissue Mills; I. H. Weldon, president of Provincial Paper Mills; W. H. Smith, treasurer of Abitibi Power & Paper Co.; H. Crabtree, secretary of Howard Smith Paper Mills; and R. M. Olzendam, Spanish River Pulp and Paper Mills (Secretary).

The Employers' Committee will work in the closest co-operation with the Ontario Pulp and Paper Makers' Safety Association, whose function is the successful carrying out of accident prevention policies, and its objective the reduction of compensation costs to the industry by the elimination of accidents. It is hoped that by the hearty co-operation of all concerned a saving of $200,000 a year to the industry in reduced compensation assessments will result.

Kenora Newsprint Machine Delivered

Erection has been started of the biggest Fourdrinier paper machine in the world, which was recently shipped by the Bagley & Sewall Co., of Watertown, N. Y., to the Kenora mill of the Backus-Brooks Co. This machine, which beats world's record for width by one inch, is 245 inches wide. It is expected that it will be set up and ready for operation by Christmas day, and is rated to turn out 125 tons of newsprint a day when it shall have been properly tuned up and adjusted.

Richard Gray, set-up man for the Bagley & Sewall Co., is superintending the erection of the monster machine.

Importance of Accident-Prevention Well Realized

The directors of the Ontario Pulp and Papers' Safety Association held a meeting in Toronto early last month under the chairmanship of R. A. McInnis, president of the Association. The whole situation in regard to accident prevention in the pulp and paper industry in Ontario was reviewed, and plans were made to put the organization on a much better basis.

A definite plan was drawn up under which mills will be

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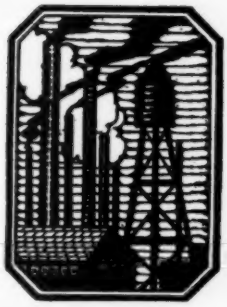

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True enough, it was not our kind of paper. The ingenious Chinese stripped the inner bark of the mulberry tree, stained it black, stamped vermilion characters upon it by means of movable blocks, then beheaded all imitators of this imperial currency.

Polo talked of the population, distance and wealth of Kublai's empire in such large terms that his Venetian neighbors nicknamed him "Marco Millioni." How much less would they have believed the present day immensities of our own United States of America! Here ten million people use paper money they create at the moment of payment—checks, written on paper plentiful enough and economical enough to be used for a single transaction.

Hammermill Paper Company

Erie, Pennsylvania

grouped geographically, each group being formed into a separate local safety council, holding meetings periodically of representatives of each mill in the group, comparing notes as regards accidents, and interchanging all information bearing on more efficient accident prevention. Other suggestions were put forward and discussed, some of which were adopted and others rejected. The outcome of the meeting was decidedly favorable to a more extensive and more efficient campaign against accidents than ever before experienced in the pulp and paper industry.

Ernest Rossiter, vice-president of Nipigon Corporation, Ltd., recently stated that the Nipigon Corporation, whose tender for a large pulpwood limit was recently accepted by the Ontario Government, will erect at Nipigon, in the Thunder Bay district, a mill to produce a minimum of 60,000 tons of newsprint annually, together with the necessary pulp mill to supply the paper mill.

Spanish River Interested in New Kaministiquia Power Co.

A new offering of Kaministiquia Power Co. gold bonds has been made by a syndicate. The new offering followed the recent decision of the shareholders of the old Kaministiquia Power to dispose of their holdings to a strong group interested in power and paper developments, the new company taking the same name as the old company.

The directorate of the new company is as follows: George H. Mead, chairman of the board of directors; George R. Gray, president; W. N. Hurlbut, vice-president; Sir Herbert S. Holt, J. S. Norris, N. M. Patterson, P. B. Wilson, C. H. L. Jones, T. H. Watson. It is apparent from the personnel of the new directorate that control is now closely associated with the Spanish River and Montreal power interests.

Recent Ottawa incorporations include Fort William Power Co., Ltd., with 50,000 seven per cent preferred shares of $100 each and 100,000 common shares without par value. Headquarters are at Toronto.

The Canadian Barking Drum Co., of Toronto, have recently received contracts through their Canadian and United States offices for drums to be installed by the following companies: Oji Paper Manufacturing Co., Tokio, Japan; Daily Newspaper Corporation, North Tonawanda, N. Y.; Oregon Pulp and Paper Co., Salem, Ore.; Calcasieu Sulphate Paper Co., Louisiana, and Port Alfred Pulp and Paper Corporation, Port Alfred, Que.

United Paper Mills, Ltd., Spadina Ave., Toronto, have taken over the business of the Allen Paper Co., Ltd., of the same city. Charles Allen, head of the latter firm, has gone to the United Paper Mills as sales manager, as have also the majority of his former staff.

Edward Farnsworth, aged 38, was instantly killed at the Foley Riegler pulp mill on November 8th. He was starting up the machinery in preparation for the week's work when he was caught in the shafting and whirled about, striking the wall with great force. Two other employees stopped the machinery, but Farnsworth was dead when his body was taken down. He is survived by a widow and five children.

A smart job was done recently on one of the sulphite digesters at the Abitibi mill at Iroquois Falls. The lining which was put in the bottom cone did not stand up and had to be replaced. The repair crew got to work late one Sunday night, when the digester got cooled, removing the old brick and the new brick was put in and completed late Tuesday night. Wednesday it was allowed to set and the digester was in use again on Thursday.

No private power development along or near the Nipigon River will be necessary to turn pulp and paper mill wheels for the 10,000 square mile area of timber limits recently sold to pulp and paper mills at the head of the lakes by the Ontario

Progress in Paper Making

WITH progress in American paper making, we are concerned and connected. To commemorate the advances that have been made, the more important annals of the industry will be recalled from month to month in this space.

An Invention for Changing Widths

In 1858, Thomas Lindsay, of Westville, and William Geddes, of Seymour, Conn., invented a mode of varying the width of paper while the machine was in operation. The invention consisted in having the lip basin which conducts the pulp from the apron constructed in two parts so that one part may slide over the other, and having the parts connected with the deckles, which, as well as the deckle straps, were, by a novel mechanism, rendered susceptible of lateral adjustment.

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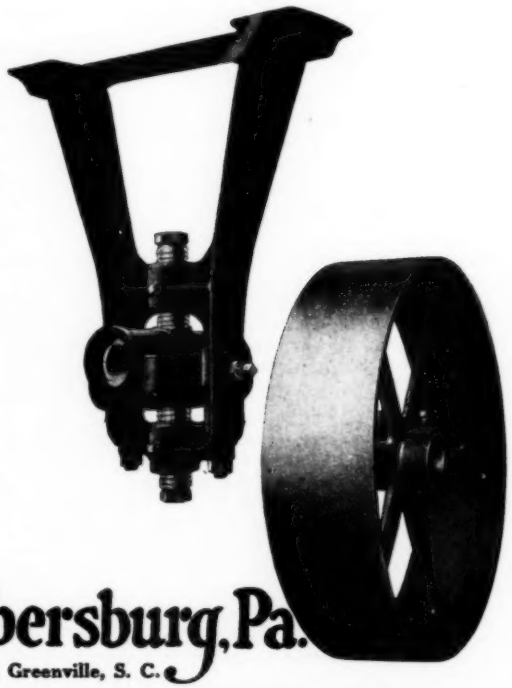

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Government. The Provincial Hydro-Electric Power Commission will be able to look after the maximum estimated requirements, either from the Nipigon River itself or from another plant strategically situated.

Power from its Island Falls plant was recently turned on at the mill of Abitibi Power & Paper Co., at Iroquois Falls. The power will be used for the generation of steam in electric boilers pending the erection of extensions which will increase the capacity of the mill from 500 tons of newsprint a day to 800 tons.

Our congratulations to Mr. John F. Ellis, president of Barber-Ellis, Ltd., and honorary president of the Canadian Paper Trade Association, who recently celebrated his eightieth birthday. Mr. Ellis is enjoying good health and is at his office every day, keeping in close touch with all departments of his business.

The newsprint machine of the Beaver Wood Fiber Co., which was recently installed at the Thorold mill, has been started up. It is rated to turn out 70 tons daily when it will have been tuned up and adjusted.

It is reported that Mattagami Pulp & Paper Company, which has a sulphite mill at Smooth Rock Falls, is negotiating for further timber limits, with a view to erecting a 200-ton news print mill. The company at present is being operated by a receiver, but a plan of reorganization has been formulated by the debenture holders.

James McCullough, of Toronto, who for some years has been the Ontario representative of the Brompton Pulp & Paper Co., of East Angus, Que., has been transferred to Montreal, and has been succeeded by William Tait.

Abitibi Power & Paper Co., Iroquois Ralls, has reserved its mill classroom one night a week for the use of students who are taking up the correspondence course in pulp and paper which is being conducted by the Institute of Industrial Arts, of Gardenvale, Que. The class at Iroquois Falls is well attended and is under the direction of A. A. Scott of the Service Division.

Provincial Paper Mills recently acquired additional limits of 1,430 square miles in the Nipigon District, which will mean the doubling of their capacity at the Port Arthur mill within two years' time. It is estimated that the timber limits now available are sufficient to keep the company operating at full capacity for 150 years.

Thomas H. Richardson, who was well known in the lumber and pulpwood circles of the province for many years before his retirement, died recently at Orillia at the age of 76 years.

Dyestuffs Firms Consolidate

On the 16th of last month, there went into effect a consolidation that will mark an epoch in the history of the paper industry in Canada, particularly of the dyeing section of the industry. On that date the Consolidated Dyestuff Corporation, Ltd., commenced operations. The organization is the result of the merger of the dyestuffs departments of the following concerns: Canada Colors and Chemicals, Ltd., of Toronto, Ont.; Grasselli Dyestuff Corporation, Ltd., of Toronto; Kuttroff Pickhardt & Co.; McArthur-Irwin, Ltd.; Pollack Bros. & Co., Ltd., and Rubinovitch & Haskell, Ltd., the last four all of Montreal. It follows as a natural consequence from the consolidation of the seven largest German dyestuffs manufacturers into the Interessen Gesellschaft ("I. G."), for whose products the various Canadian firms mentioned above enjoyed the sole rights of importation into Canada.

The new company's laboratories will have special departments to study problems in connection with the utilization of dyestuffs in the textile, paper, leather and fur industries, and will be equipped with the most modern and up-to-date equipment for handling these problems.

How Tannate Serves Paper Mills

A MINNESOTA paper company put a two-ply Watershed Tannate Belt on their No. 2 machine and a three-ply oak on their No. 1 machine. Four months after the installation of the two belts, one of the owners remarked, "I believe the two-ply Tannate will beat the three-ply oak."

Three months later the Tannate was running smoothly, showing almost no wear and the oak belt was "thumping to beat the band." The owner then gave as his reason for buying other Tannate Belts the service this Tannate Belt was giving.

Other paper mills have found it well worth while to use Rhoads Watershed Tannate Belts.

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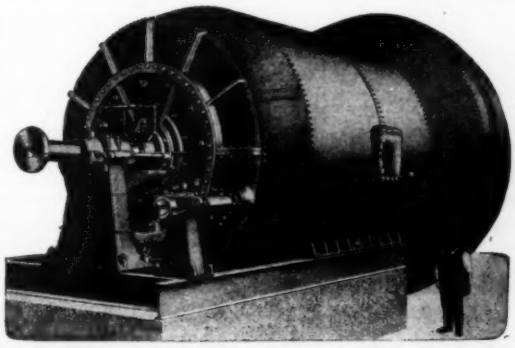

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All of our turbines are designed and built to suit location and requirements, by engineers and experts who have had years of experience in this particular line of work. Turbines fully guaranteed.

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MILL EQUIPMENT

Years of Service at Full Efficiency — Not the First Cost

Is the dominant thought in the "Industrial Type" Gear Speed Transformer

Low Speed Side "Industrial Type" Speed Transformer

A nest of plain spur gears revolving in oil changes the revolutions per minute of the input shaft to some desired revolutions per minute of the output shaft. The power transmitted is the same in both shafts. The efficiency is higher than any other form of gearing.

It is the "short cut" from motor to machine or from shaft to shaft where speeds are widely different. It eliminates cumbersome speed changing devices and saves power losses.

The Hill Clutch Machine & Foundry Co.

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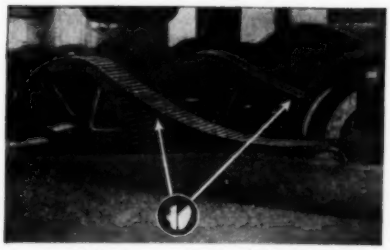
MORSE SILENT CHAIN DRIVES



Two 125 H.P. Morse Silent Chain Drives from motors to beaters. Drivers, 700 r.p.m.; Driven, 360 r.p.m.

Think of Morse Silent Chains when you want

Dependable power transmission—Quiet operation, flexibility—Positive action, sustained efficiency—Long life, low upkeep—"A Power Saver for Power Users."

4,000,000 H. P. of Morse Silent Chains have been installed for transmitting from ¼ to 5,000 horse power at speeds from 6,000 to 250 or slower. Especially effective on short centers.

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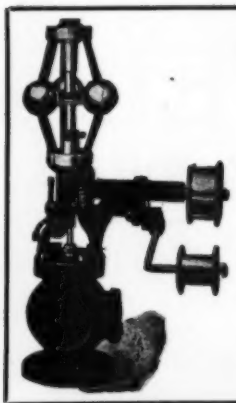


How Much *Paper* Are *You* Losing Because of Uneven Thickness?

During the past three years we have developed wide experience in building Governors for Engines and Turbines in Paper Mill service, resulting in uniformly thick paper, and a considerable increased production.

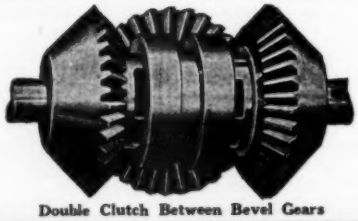
Catalog 32 on request.

THE PICKERING GOVERNOR CO.
Portland, Conn., U. S. A.

THE JOHNSON FRICTION CLUTCH

Clutch for Reverse Drives on Paper Machines

In using Johnsons on the countershaft, one pulley is mounted on each hub of the clutch. Thus, through one open belt and one crossed belt, the operation of a machine may be reversed speedily and easily.



Double Clutch Between Bevel Gears

By installing the clutch between bevel gears, as shown in the illustration herewith, reverse motion may be obtained. Also, spur gears are often used on machinery to get two speeds. Equip your paper machines with Johnsons.

Write for Catalog P. I.

THE CARLYLE JOHNSON MACHINE CO. MANCHESTER CONN

MANITOBA

Work Started on Manitoba Paper Mill

Work is now under way on the 250-ton pulp and newsprint mill being erected by the Manitoba Pulp & Paper Co., Ltd. The contracting firm of Carter, Halls, Aldinger, of Winnipeg, has already taken in, via Fort Alexander, some 400 tons of supplies to the Winnipeg River site, and initial operations have been started by a gang of 50 men. The schedule of the company provides that the mill should be constructed and paper actually being produced by December, 1926.

According to Col. C. H. L. Jones, vice-president of Spanish River Pulp & Paper Mills, which is behind the venture, the mill, when completed, will be very similar to the one now owned by the latter company at Espanola, Ont., and the construction conditions on the two sites are also very much alike. As a result of the company's project at Espanola, a town of 4,000 people has grown up. It has been built on the most improved civic lines, with the company providing everything necessary in a municipal way. Col. Jones intimated that it is intended to proceed in a similar way with the Fort Alexander enterprise.

It has been definitely announced that Manitoba Power Co., a subsidiary of Winnipeg Electric Co., has been awarded the contract to supply the new mill with electric power. Some time ago it appeared as though the contract might go to the Winnipeg Hydro organization, and thus constitute a victory for public ownership.

A seven passenger, twin engine flying boat, which, it is said, will revolutionize the aerial fire fighting methods employed by the government protective patrols, is being tested at the Dominion Government Airdrome, at South Marsh, near Ottawa. If satisfactory it will be flown to Manitoba, where it will take on fire protective duties in one of the most important forest areas. If this machine is successful, others of the same type may be constructed for fire fighting purposes.

NEW BRUNSWICK

New Fraser Mill Producing Paper

Construction of the mill of Fraser Companies at Madawaska, Me., opposite Edmundston, N. B., has been completed, and one machine is now in operation, while the second one is expected to be in commercial operation early next month.

In view of the satisfactory position of the sulphite paper business in the U. S. market, the operations of the Madawaska mill are expected to be most profitable. The recent increase in selling price and improvement in demand for bleached and easy-bleaching sulphite—the company's chief products—are being reflected in increased earnings.

The family of the late William B. Snowball, of Chatham, has received many testimonials of regret since the sudden death of Mr. Snowball. For many years he was active in the pulpwood industry. In his death another of the leading figures in lumbering has passed away. Mr. Snowball's influence extended into politics. He was elected in a bye election for the constituency of Northumberland to a seat in the House of Commons at Ottawa. He had been renominated by the Liberal party, and was in the midst of his campaign when stricken with heart trouble, and succumbed after 24 hours' illness.

The manufacture of flat newsprint by the Bathurst Company, Ltd., of Bathurst, has stimulated activities in general at the company's paper mill. Since the opening of the plant the newsprint was manufactured in rolls only. But some time ago it was decided that there was sufficient demand for the flat newsprint to produce both rolls and flats, and the company recently started manufacturing the latter. It has been found that the demand for this form of newsprint ex-

Jenkins—
as a matter of course

Fig. 106, screwed, Jenkins Standard Bronze Globe Valve.

It never occurs to hundreds of engineers to buy any other valve but a Jenkins. And the preference in most cases is based on experience.

Jenkins Valves give maximum rather than average service because they're built to give it. Strength where strength is needed is a feature of Jenkins design; the metal used is analyses-proved both before and after casting.

The thoroughness of Jenkins manufacture provides, too, for the testing of the completed valve to allow a wide margin of safety.

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JENKINS BROS., Limited
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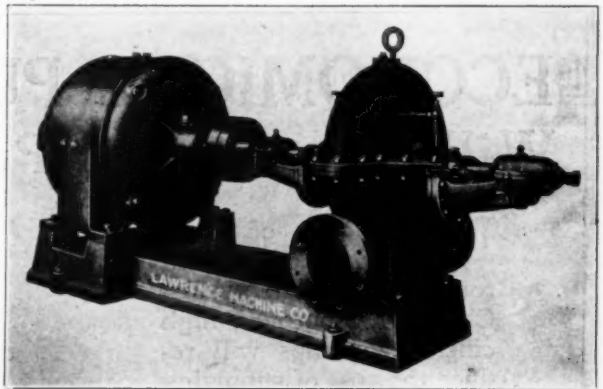
Always marked with the "Diamond"
Jenkins Valves
SINCE 1864



LAWRENCE Centrifugal turbine pump, single stage, horizontally split casing, double suction enclosed impeller, high pressure pumps for water supply service, designed and built in all sizes to meet all conditions. Direct connected to electric motors, steam turbines, gasoline engines, etc. Material and workmanship of the highest class. Please submit to our engineering department your specifications. Prompt service rendered at all times.

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Manufacturer of "Lawrence" Pump, Centrifugal Pumping Machinery, Vertical Steam Engines, Contractors for Special Machinery

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DEGRACO PAINTS

All Colors for Your Particular Needs

Specializing in the manufacture of paints in all colors to meet the particular requirements of paper and pulp mills.

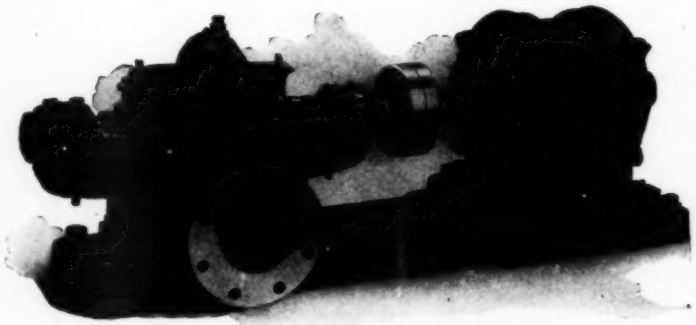
A special service that will solve your painting problems.

Offices and warehouse stocks in all principal cities

ECONOMICAL PUMPING

Will Lower Your Pumping Costs

MANY tons of water are pumped for each ton of paper made. Allis-Chalmers' improved high efficiency pumps will reduce the cost of supplying this water. If you are figuring on replacing or adding any pumping equipment it will pay to investigate the economy of Allis-Chalmers' Centrifugal Pumping Units.



ALLIS-CHALMERS

MILWAUKEE, WIS. U. S. A.

ists among the smaller publications, including newspapers and magazines.

International Paper is reported to be taking over the St. George Pulp Company's plant and timber holdings in New Brunswick. The deal is said to form part of a scheme in which International Paper plans to take over all the pulp and paper holdings of the *New York World*, which controls several pulp and paper holdings in the United States also. There has been no official confirmation of the deal as yet.

NOVA SCOTIA

It is understood that efforts are being made to reopen the paper box plant of the Bear River Pulp Co., Ltd., at Bear River, N. S. On petition of the bondholders the entire plant was closed down by an order from the Nova Scotia Supreme Court. The Eastern Trust Co. was appointed receiver.

Frank Kellogg, who has been in the employ of the A. P. W. Pulp & Power Co. at the new Sheet Harbor pulp mill, has returned to Vermont, whence he came to join the staff of the company. Fellow employees presented Mr. Kellogg with a sum of money and Mrs. Kellogg with an ivory toilet set, at a farewell reception tendered to them at Sheet Harbor recently.

The A. P. W. Pulp & Power Co., Ltd., has secured considerable pulpwood from Prince Edward Island for the Sheet Harbor mill. Schooners have been transporting the wood from the island to Sheet Harbor. The schooner Irene recently brought a heavy cargo of wood to the company's dock from Georgetown, P. E. I.

The plans for the new pulp and paper mill which Frank J. D. Barnjum is to erect in Nova Scotia will be speeded up. Recently Mr. Barnjum acquired some property from the Canadian National Railways, which is to be included in the site of the new mill. Mr. Barnjum had been negotiating for some months for this property, and it was impossible to carry out any plans for the projected mill until this had been acquired.

The four-masted barkentine John C. Meyer, bound from Parrsboro, N. S., for Norfolk, Va., with a cargo of pulpwood, went ashore on Libby Island, off Machias Port, Me., on November 28th. The vessel and cargo were a total loss, but the crew of ten men were saved.

BRITISH COLUMBIA

Whalen Reorganization

In connection with the reorganization of the Whalen Pulp & Paper Mills, of Vancouver, affairs are proceeding favorably. Complete reorganization plans in connection with the recent sale of the assets of the company to the first mortgage bondholders are expected to be in final form some time in January. It is learned that the receiver, E. M. Mills, will continue to hold office until the end of the year in order that details of the business may be facilitated.

Two certified cheques for $150,000 and $100,000, original payments on the recent purchase of the Whalen assets, were ordered to be endorsed by the court registrar and handed to the trustee for application upon the affairs involved in the assignment.

The Dominion seed extraction plant at New Westminster started operations on November 1st. A consignment of 100 sacks of Sitka spruce cones from the Prince Rupert district is practically assured for the British Forestry Commission, London.

Angus McLean, president of the Bathurst Company, was recently elected president of the Maritime Board of Trade.

SAFETY SENTINELS

C. S. B. SPRINKLER HEADS

LIKE sentinels stationed for the first approach of danger, C.S.B.'s stand ready to extinguish the first blaze. Quickly and easily installed without special labor. Approved by the Associated Factory Mutual Fire Insurance Companies and the Underwriters' Laboratories, Chicago.

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The 100% Lubricant —Never Drips
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Feeds gradually—use it on your conveyors, shafting, grinders, etc., and get more power. The Albany Grease Trade Mark is on every can and barrel — look for it for your protection.
Your dealer can supply you. If not, write us.
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Increase Your Capacity!

See page 373 in the 1925 Paper and Pulp Mill Catalogue

GET your production up—increase your capacity. Install a Manitowoc Digester, Incinerator, Diffuser, Disc Evaporator, Barking Drum, that will insure you maximum production at lowest costs.

Long years of "knowing how" have enabled us to design and construct equipment that will give generous, full-measure production—that will stay active long after they have paid for themselves.

Let our experienced engineers show you where and how your production costs can be lowered.

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Manitowoc, Wisconsin

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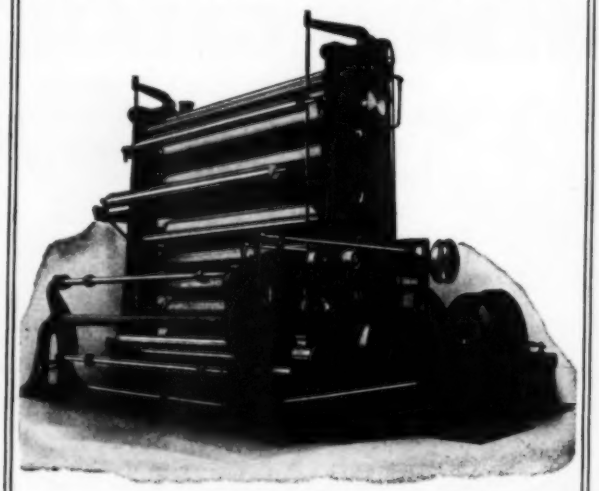
NORWOOD
SUPER CALENDERS



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Paper Finishing Machinery

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TRAVELING CRANES

Reading Cranes are the result of 25 years' experience in the manufacture of hoisting machinery and are built for severe service.

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READING CHAIN & BLOCK CORP.

We also make Chain and Electric Hoists.

READING, PA.

Wisconsin News

December 1, 1925.

New Equipment for Flambeau

The Flambeau Paper Co., of Park Falls, is seeing new construction and the installation of new equipment. The plant at Ashland has been discontinued, sold and dismantled, but at Park Falls, a new building for machine shop and other purposes and also a new beater room, 60 by 88 feet, are being built. Both are of brick matching the general style of architecture of the whole plant.

Among the new equipment for the beater room are six 100-pound Jones beaters of the fast circulating type. The company also is rebuilding two of its Horne beaters. All will be driven in pairs by Allis Chalmers motors, the drive being unique for beater purposes.

The Appleton Machine Company, of Appleton, Wis., is building the Flambeau concern a No. 2 Ball Bearing Jordan to be operated by a 150 H. P. Allis-Chalmers synchronous motor, and it also is rebuilding a Jones Imperial Jordan, which will be motor driven. Other beater installment is an alum and sizing system. Recently the company installed a Voith high pressure stock inlet on one of its Beloit paper machines, and is also installing a Johns-Manville hood equipped with two Bayley exhaust fans for another Beloit paper machine.

One machine of the Ashland paper mill acquired recently by the Menasha Printing and Carton Company, Menasha, is running 24 hours a day, with three shifts, in the manufacture of napkin paper, which is cut down to size, ready for use. The second machine, which will be in operation shortly, will be used for making bread wrappers, which will be shipped to the Menasha printing plant.

Receivership for Island Paper Co.

A receivership has been asked for the Island Paper Co., of Menasha, and at a hearing in Winnebago County circuit court, at Oshkosh, Hugh Strange, of the John Strange Paper Co., Menasha, was appointed receiver. Another hearing has been scheduled to take place in court this week for the purpose of determining further procedure, that is whether the plant will be sold or whether it will be operated for the stockholders and creditors.

Action was brought against the failing paper company by the Kaukauna Ground Wood Pulp Co., of Kaukauna, but was called a friendly suit in order to re-establish the financial status and to protect the claims of the creditors.

The total indebtedness is approximately $230,000 and the assets are said to be $400,000 in excess of the liabilities. There is no bonded indebtedness. The company reported sales aggregating approximately $700,000 a year. It is capitalized at $300,000. It employed nearly 150 men, who are now out of work and anxiously waiting for news as to whether they may return to their jobs or whether they will have to abandon their trade entirely.

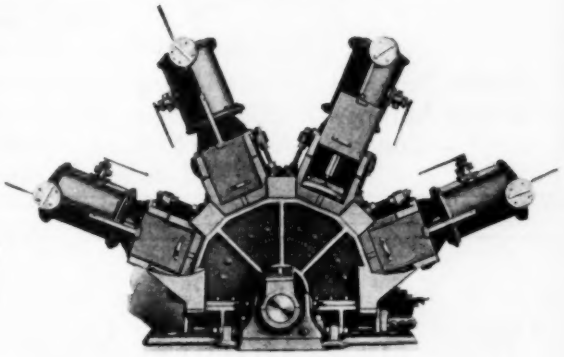
Connect Rivers Through Water Mains

The new dam which the Wisconsin River Paper and Pulp Co. intends to build across the Wisconsin River in the town of Plover, in Portage County, will be of concrete and will replace the present wooden structure. It will be used to develop more hydraulic power and to operate a pulp mill of this firm.

With the option of building a complete filter system with settling basins at its plant on the Wisconsin River at Stevens Point, or laying water mains from the Plover River, the company decided upon the latter course. It recently obtained permission from the Stevens Point city government to install the mains and erect a pumping station in the Plover basin. The main will be 18 inches in diameter and will be over two miles long.

Since the water of the Wisconsin River has not been of the desired color, the company chose to lead in pure water from the Plover River so as to make possible the manufacture of a higher grade of paper. The mill is now largely engaged in manufacturing butter wrapping paper. The city of

INTERNATIONAL GRINDERS



Built with either three or four pockets—heavy construction throughout.

Pockets held in position by two large steel bolts—bridge trees extra heavy.

Pockets large in size, so that frequent refilling is unnecessary.

Save-alls below outside pockets catch all pulp when pockets are opened.

Special tapered bronze bushings—thread on inside only.

Bearings very large—wedge adjustable.

Equipped with Barker valves which are designed so that they stay tight.

Green Bay Barker Co.

Green Bay, Wisconsin

Makers of the Famous Green Bay Barker

Morey Paper Mill Supply Company

99 Chauncy Street BOSTON, MASS.

Vulcan TRADE MARK

DRYER FELTS

BRANDON 3-PLY "TRI-UMPH" AND STANDARD WARP

Deckle Tape and Cutter Webbing—Cotton and Rubber Belting—Enamelled, or Rubber, Fourdrinier Aprons—Rubber Splicing Tissue—Neutral Soap Powder—Dryer Felt Sewing Twine —Superheat Asbestos Packing—Rubber Sheet Packing—Steam and Water Hose "Lambeth" Cotton Transmission Rope

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Fitchburg, Mass., U. S. A. Lennoxville, P. Q., Canada

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(Best phosphorized Cast Metal)

Old Plates RECLOSED and RECUT to accurate gauge
UNION BRONZE SCREWS for Screen Plates
Immediate Delivery of the Largest Orders. Satisfaction Guaranteed

The Witham Screen Plate Fastener, Patented

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SCREEN PLATES *and* DANDY ROLLS

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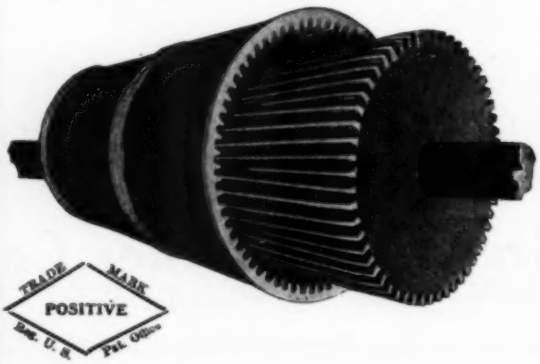

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IF SO

Forward your inquiry to

THE BAHR BROS. MFG. CO.

Marion, Indiana, U. S. A.

Stevens Point had no objection to the project, as the Plover River, from which the city draws its own water, has an abundant supply.

James A. Lemmon has been engaged by the Peshtigo Paper Co., Peshtigo, as its sales representative for Chicago and the eastern district. Mr. Lemmon was formerly connected with the American Writing Paper Co. The Peshtigo Paper Co. is also retaining Reuben C. Swan, of Chicago, as its sales representative for Chicago and the western district.

James Howard Delbridge

Death took James Howard Delbridge, president and general manager of the Marinette & Menominee Paper Company, Marinette, Wis., on Nov. 18. He died in a Green Bay hospital at the age of 57 years.

Mr. Delbridge was one of the best known paper manufacturers in Wisconsin. He was born in Albion, Mich., where he attended the public schools and Albion College. He married Miss Esther Carrier, of Lansing, Mich.

He was first employed as a clerk in a railroad storekeeper's department and later worked for the Kaukauna Fibre Company at Kaukauna. In 1903, he moved to Oconto Falls, where he was made manager of the Falls Manufacturing Company. When the Continental Paper and Bag Mills took over the paper mill in Marinette he moved to Marinette, where he became its president and general manager, also remaining executive head of the Falls Manufacturing Company.

Will Hold Safety Conference at Green Bay

Most of the paper mills of this section of the state will be represented at the Fox River Valley Safety Conference which will be held in Green Bay on Dec. 9. The mills of the Kimberly-Clark Compay will send about 20 delegates, and other paper mills and plants of allied industries also have made reservations for the banquet which will be held in Hotel Northland on the evening of the convention day.

The conference will be largely modeled after the National Safety Conference which was held in Cleveland last summer, and at which The Paper Industry was awarded a prize for the safest paper mill. The National Safety Council has given its help to the sectional meeting in Green Bay.

It is expected that over 500 persons will be in attendance. Sessions will be held in the morning, afternoon and evening. Judson G. Rosebush, president of the Patten Paper Company, Appleton, whose address at the Cleveland conference was declared one of the best heard, will be one of the speakers. He will talk at the Wednesday evening banquet, following Carl L. Smith, Chicago, field representative of the National Safety Council. Delegates are looking forward with pleasure to both addresses.

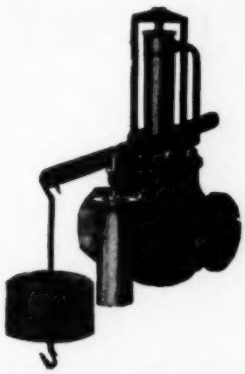
Others on the program are Al Kroes, safety engineer of the Employers' Mutual Liability Insurance Company, Wausau; Dr. C. F. Schramm, chief surgeon, Fairbanks-Morse Company, Beloit; J. A. Hoeveler, electrical engineer of the Wisconsin Industrial Commission; T. H. McKenney, supervisor of safety of Illinois Steel Company, Chicago.

Two workmen were hurt, one seriously, two weeks ago, when a freight car in the yards of the Marinette & Menominee Paper Co. struck a bumper post. Both men were on board the car.

W. C. Wing, Neenah, president of the Fox River Paper Company, at Appleton, and E. A. Peterson, president of the Valley Iron Works, Appleton, manufacturing paper mill machinery, have returned from a stay of several months in Europe, where they visited a number of mills.

Vocational Education at Green Bay

Green Bay vocational school has under consideration a plan for introducing paper mill educational projects in its courses. E. E. Gunn, Madison, state supervisor of vocational education, recently visited the Green Bay school authorities with a



WOULD you pay fifteen cents for a five cent cigar? Some men would. Would you use one hundred and fifty pounds steam pressure if fifty pounds were enough? Some engineers would. Others use Davis Pressure Regulators to reduce the boiler pressure to any lower pressure needed for auxiliary use.

G. M. DAVIS REGULATOR CO.
414 Milwaukee Ave.,
Chicago, Ill.

1875—Valve makers for fifty years—1925

DAVIS VALVE
STEAM SAVERS SINCE 1875
SPECIALTIES

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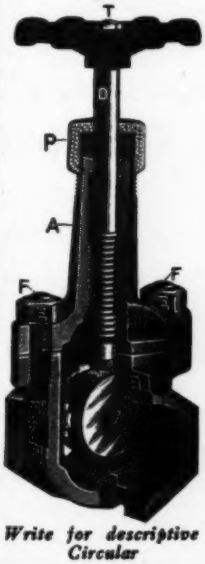
POWELL VALVES

"Pilot" Gate Valves

Fig. 468



All iron or iron body with steam bronze trimmings. Simple in construction.

Working Pressure up to 125 lbs.

Economical and Reliable

Avoid disappointment in Valve Service by specifying POWELL VALVES

The Wm. Powell Co.
214 Draper St.
Cincinnati, Ohio

Write for descriptive Circular

IF WE CAN MAKE RUBBER PRESS ROLLS (Snappy and Tough)

THAT TAKE MORE WATER OUT
THAT ARE EASIER ON THE FELTS
THAT STAND UP BETWEEN GRINDING

Longer than the ones you are using, it will pay to send your rolls to us if you are three thousand miles away. Some mills are doing this.

STOWE & WOODWARD COMPANY

The Rubber Roll Makers NEWTON UPPER FALLS, MASSACHUSETTS

THE WATERBURY FELT CO.

SKANEATELES FALLS
New York

FELTS and JACKETS

Top and Bottom Wet Felts for board machines, with all the qualities requisite to insure long life and continuous production.

They Satisfy

THE DRAPER FELT

Unexcelled for strength, openness, resiliency, and general running qualities. Made to meet the most exacting conditions on all types of machines and all kinds of papers. Only one grade and that the highest.

Made by

DRAPER BROTHERS COMPANY

CANTON, MASS.

Woolen Manufacturers Since 1856

REPRESENTATIVES

L. H. BREYFOGLE, Kalamazoo, Mich. INTERNATIONAL TRADING CO., Philadelphia, Pa.

view of establishing a project similar to that which the paper mill cities of Kaukauna, Appleton, Neenah and Menasha have espoused.

The plan calls for an "up-grading" project whereby men are taken from the paper mills into schools and given instruction to prepare them for positions of greater responsibility.

L. M. Alexander Endows College

L. M. Alexander, well known paper manufacturer of Port Edwards, who is also president of the board of trustees of Lawrence College, in Appleton, has donated $150,000 toward construction of a $300,000 gymnasium for the college and $50,000 toward a $200,000 maintenance endowment fund for the gymnasium, it was announced last week at the installation of the new college president, Dr. Henry M. Wriston, formerly head of the department of history at Wesleyan University, Middletown, Conn.

Mr. Alexander has been interested in Lawrence College activities for a long time. He donated the money for the Alexander Gymnasium now in use at the college and which has become too small following rapid growth of the college in the last 20 years. Students and alumni of the institution have subscribed $50,000, leaving half of the $500,000 fund still to be raised.

New Buildings for Riverside Under Construction

Riverside Fibre & Paper Co., of Appleton, has started construction of a new warehouse and a pumping station at its new plant on Railroad avenue.

The warehouse will be 30 feet wide, 60 feet long and 14 feet high, and the material is brick, concrete and steel. C. R. Meyer & Sons Company, Oshkosh, have the contract. The pumphouse built at its filter basins will be 12 by 28 by 10 feet. Riverside Fibre & Paper Co. probably has the most modern plant in the state, as all of its buildings have been erected within the last two years.

A workman at the Neenah mill of the Kimberly-Clark Co. recently found hundreds of tiny bits of $5, $10 and $20 bills which he had unknowingly chopped up with the rag cutter. The bits were to be assembled and sent to the United States treasury department in an effort to determine how much money was in the lot. It is believed that the money might have been stolen loot hidden among the rags.

Charles Block, of Kaukauna, assistant superintendent of the Outagamie County Paper Company, died last week at the age of 51 years. He was born in Kaukauna and had been an employee of that paper mill for 35 years.

The Atlas mill, Appleton, of the Kimberly-Clark Co., has begun the construction of a new warehouse, with C. R. Meyer & Sons Company, of Oshkosh, as the contractor builders. The building will be of brick, concrete and steel, and its dimensions are 95.10 by 53 by 30 feet. The probable cost is estimated at $25,000.

A new wholesale paper house was opened in Madison recently under the name of the Central Paper & Specialty Company. It is located at 180 Main street. Officers of the company are: President, J. P. Arensdorf; vice-president, Theodore Engler; secretary and treasurer, and general manager, A. B. Weber. These officers, together with James Saul and J. V. Weber, compose the board of directors.

A workman of the Thilmany Pulp & Paper Co., Kaukauna, by the name of Harold Giesbers, lost a part of his finger while cleaning up around a paper machine and dropped an iron shaft weighing 125 pounds upon the floor. The sharp edge cut off the forefinger of the right hand at the first joint.

Carl Paschak, an employee of the Whiting-Plover Paper Co., near Stevens Point, recently suffered a fracture of a bone in his foot when a shaft fell upon it.

MITTS & MERRILL

Conveyor or Gravity Feed Shredder

THE operation of a beater, with its wear and tear and tremendous power consumption, has one primary purpose, namely, hydration. Anything that will economically bring about hydration more quickly relieves the beater just that much, cuts down on operating costs and speeds the process of paper making.

The Mitts & Merrill Shredder performs on magazines, books, old paper and boxboard, frozen or dried pulp laps, roll and sheet stock, in such a way as to greatly reduce their resistance to hydration when they reach the beater. It gives the beater an economical lift.

Our Shredders are built in sizes with spouts ranging from 18″ to 45″ wide. We will be glad to quote you on any size adapted to your requirements.

We also build a 100% efficient "Hog" to reduce pulp mill bark and wood refuse.

MITTS & MERRILL
1013 Tilden Street, Saginaw, Mich.

CURVED

Each CRESCENT PLATE is curved so that the joint hugs the pulley tightly—holds the power. No wear of metal on the pulleys, no noise—a "sweet" running belt is the result. Crescent Belt Fasteners insure continuous production—reduce Belt troubles to a minimum. Write for Belt Joining Booklet. Crescent Belt Fastener Company, 247 Park Avenue, New York.

CRESCENT
BELT FASTENERS

Aurora Centrifugal Pumps

Type OMD

Aurora pumps are made in many types, to meet all conditions found in the paper mill field.

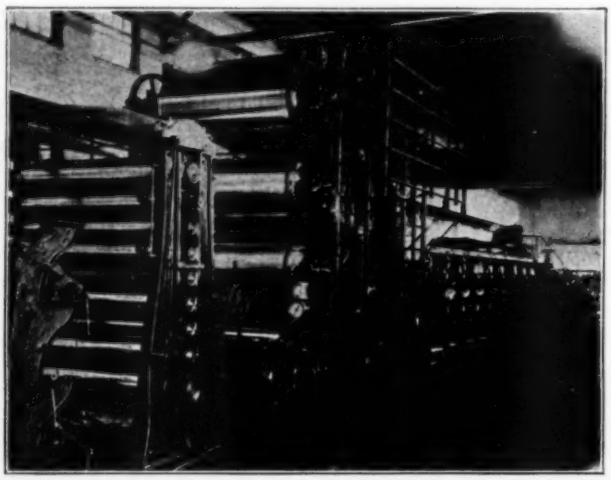
We specialize in horizontally and vertically split open and inclosed impeller, single and multi-stage and deep well turbine centrifugal pumps as well as deep well reciprocating pumps.

A card from you stating your conditions places our engineers at your service and results in a saving to you.

AURORA PUMP & MFG. CO.
Home Office and Factories, Aurora, Ill., U. S. A.

The Black-Clawson Co.
HAMILTON, OHIO

Leading Builders of the best Fourdrinier and Cylinder Paper Making Machines and other accessory equipments for Paper and Pulp Mills.



A Great Success

Our patent vertical dryers installed on a Fourdrinier machine making cover papers.

No felts used on them.

Steam pressure reduced from 15 pounds to less than 5 pounds.

No cockling of the paper.

Sheet threaded by Sheehan patent carrier system.

Increased production and better paper.

Michigan News

December 1, 1925.

Kindleberger Is Honor Guest of Employees

Parchment's most colorful fete and joyfest was held Friday night, November 13th, when all turned out to help celebrate in honor of Jacob Kindleberger, president of the Kalamazoo Vegetable Parchment Co. It was Kindleberger night at which the head of the great institution and Mrs. Kindleberger were guests of honor at a banquet planned and financed by the employees. It was the second event of its kind, the first having occurred on November 23, 1923.

The real significance of this year's celebration lies in the fact that it marked several months' successful operation of the machine in Mill No. 2 and the termination of a long series of delays.

Frank Richardson, toastmaster at the supper, remarked in addressing the guest of honor: "Any manager can get into a hole; it takes a mighty good one to get out," conveying the confidence in Mr. Kindleberger of his fellow workers, and their real satisfaction that Parchment operative difficulties have been mastered.

For two or three weeks, everybody had been on tiptoe getting ready for the event. The greatest good-natured rivalry existed among every department in the organization. The program began with a procession more than a mile long—a revel of color and novelty effects—which marched to the Community House where supper was served, followed by a highly original and interesting program participated in by employees of the different departments of the company.

Mr. Kindleberger was visibly affected and in remarks urged a continuance of the wonderful spirit of loyalty everywhere evident in the plant, adding, "As long as we work together, we need not be afraid of competition. If the company wins, you win, for we will win or lose together."

A hymn of the Parchment quartet and benediction by Reverend Walker closed the program.

Butter Dish Factory Locates in Standard Mill

Another addition to the list of Kalamazoo manufacturing concerns allied directly with the paper industry is the branch of the Brest-Forster-Dixfield Company, New York, makers of paper butter dishes and waterproof containers. Unnoticed and unsung, this plant which is the fourth of a chain of branches, is established in the carton division of the Standard Paper Company, occupying about 15,000 square feet of floor space in the basement and having a capacity of between 600,000 and 700,000 butter dishes per nine-hour day.

"Kalamazoo is an ideal location for this plant," says Mr. J. H. Britton, manager of the branch. "It is a fine shipping point, and we are also able to secure all our raw stock from the Standard Paper Co. The light grade of paper board used, comes to us trimmed to the exact requirements and in huge rolls, this making it easy to handle."

Standard Mill Storage Plant Complete

Completion of the Standard Paper Company's new storage warehouse and placing it in operation will result in a decided saving in costs in the handling of paper stock and in beater operations.

The building is erected of concrete and steel with corrugated iron siding. It is capable of storing 4,000 tons of stock, which is handled by means of two 2-ton Chaw cranes. To facilitate the unloading of cars, an industrial track has been laid parallel to the regular siding, on which is operated a light, flat deck car, drawn by a Ford truck.

In an enclosed portion of the warehouse is the Shartle breaker beater equipment, which has a capacity of 100 tons daily, electrically driven.

The Bureau of Census is making plans for the next biennial census of manufacturers, which will cover the year 1925, as provided in the Act of Congress approved March 3, 1919. Manufacturers are urged to co-operate with the Bureau by filling out the schedules as soon after January 1, 1926 as possible in order that the work can be completed early in 1926.

American Made Cotton Transmission Rope of the Highest Quality

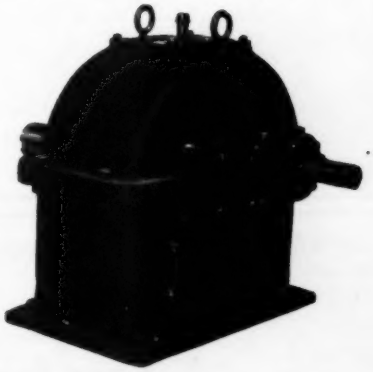
For Main Engine and Fourdrinier Drives

Light, Flexible, Durable,
LAMBETH,
the "Natural Transmission," delivers continuous power after years of use

ALSO, EGYPTIAN ROPE FOR SHEEHAN CARRIERS

Lambeth Rope Corporation
Makers of Rope since 1891
New Bedford Massachusetts
Morey Paper Mill Supply Co., 99 Chauncy Street, Boston, Mass., Distributors to the Paper Industry

POOLE
REDUCTION GEARS



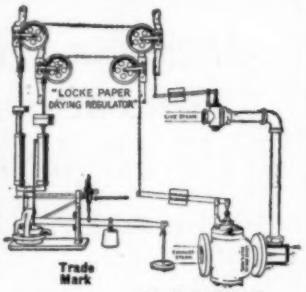
Sturdy—Reliable—Efficient

Double helical cut forged steel heat treated gears throughout. Chrome vanadium steel driving pinion. Designed and built to give long life with minimum upkeep.
Bulletin 105 tells more about these gears.

Poole Engineering & Machine Co.
Woodberry, Baltimore, Maryland

LOCKE Paper Drying Regulator

This regulator controls both live and exhaust steam for any purpose where steam is used, or it will control the direct steam when used alone. Is unlike, both in construction and operation, any device that has heretofore been designed for this purpose. Controls not only temperature of the dryers when paper is running over them, but maintains the same temperature whenever there is a break in the paper. This machine is most sensitive to any change in temperature of dryers, yet it has been found to be perfectly reliable and what is more, is not continually getting out of order.



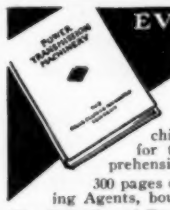
Trade Mark

Reg. U. S. Pat. Off.

Locke Regulator Co., 700 North St., Salem, Mass.

"Locke" Regulator Agency, 39 Cortlandt Street, N. Y. C.
No other agency in N. Y. C.

EVERY TRANSMISSION PROBLEM SOLVED IN THIS VALUABLE BOOK



If you are without the Falls Transmission Machinery Hand Book, your files are very incomplete, for this book has been called one of the most comprehensive works of its kind ever published.

300 pages of interest to Executives, Engineers, and Purchasing Agents, bound in cloth and cheerfully mailed on request.

The Falls line of Transmission Machinery backs up every item in this valuable book with years of experience and a guarded reputation for high quality products, honest dealing, and reasonable prices.

Kindly write your request for Catalog 18-B, today, on the firm's stationery, enclosing this advertisement.

The Falls Clutch & Machinery Co.
CUYAHOGA FALLS, OHIO
NEW YORK 206-208 Fulton St. BOSTON, MASS. 52-58 Purchase St.

Pickles' Patent Automatic Steam Regulator FOR Paper Making Machines

Which absolutely control the drying of the sheet. Installed on sixty days' trial

W. F. PICKLES **Buckland, Conn.**

PUMPS

INDUSTRIAL—AGRICULTURAL—MUNICIPAL—RESIDENTIAL

A Type for Every Service

THE GOULDS MANUFACTURING COMPANY
SENECA FALLS, N. Y.

GOULDS

TABER-PUMPS

CENTRIFUGAL & ROTARY

Fig. 192

No more stuffing box trouble.

A sturdy pump for paper mill use. Particularly well suited for handling chemical solutions. Built in iron, semi-steel, and bronze. Send for Bulletin.

Taber Pump Co.
Buffalo, N. Y.

MAGIC BOILER PRESERVATIVE

"The Pioneer Boiler Treatment"

Positively removes and prevents scale, stops minor leaks, pitting and corrosion

GARRATT-CALLAHAN CO.
27 South Clinton Street, Chicago

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Riley Stoker Corporation

RILEY STOKER CORPORATION

"RILEY" Underfeed Stokers
"JONES" Underfeed Stokers
"HARRINGTON" Traveling Grate Stokers
"MURPHY" Automatic Furnaces
Pulverized Coal Installations

9 Neponset Street, WORCESTER, MASS., U. S. A.

A Type for Every STOKER Need

Riley Stoker Corporation

ECONOMIZERS

Reduce fuel costs by making use of waste exhaust gases to preheat the boiler feed. Patented construction proven by 25 years of service.

FOSTER

SUPERHEATERS

Improve engine, turbine and boiler economy by enabling a given amount of steam to do more work. Over 10,000 installations in stationary power plants.

POWER SPECIALTY COMPANY, 111 BROADWAY, NEW YORK

Boston Pittsburgh Detroit Kansas City Dallas Chicago Denver Los Angeles San Francisco London, Eng.

$2,000,000 Rosin Company Formed

The purchase of over 200,000 acres of land in Echols and Clinch counties, Georgia, representing an outlay of over $2,000,000, has just been perfected by W. J. Lawrence of Kalamazoo, and C. K. Williams and C. H. Knight, of Easton, Pa. The plan is to establish what is said to be the largest rosin and turpentine production plant in the world, including plans for reforestation which will outstrip any efforts yet undertaken by any American corporation or municipality.

The southern base line of the property extends from the Suwanee River westward for 25 miles along the Florida state line, and has an average width of 15 miles north and south, or an area of about 375 miles. The land is covered with a heavy growth of the finest yellow pine, with some cypress.

The area includes eight towns, six of which have been acquired outright and two will be directly under the control of the new owners. Through one side of the property runs the Southern Railroad and on the other side the Atlantic Coast Line Railroad. Messers. Lawrence, Knight and Williams have started the construction of a railway, 30 miles in length, to connect the two trunk lines. Two locomotives are now in operation and a third one has been ordered from the Baldwin Locomotive Works, which will be ready for delivery about January first.

Messrs. Lawrence, Williams and Knight are directly interested in the well known firms Western Paper Makers Chemical Co. and the Paper Makers Chemical Paper Co., manufacturers of rosin size and many other papermakers' specialties, with plants in Kalamazoo, Easton, Pa., Holyoke, Mass., Jacksonville and Pensacola, Fla., and St. Austell, England. Because of the fact that the laws of Georgia prohibit any out-of-the-state corporation buying over 5,000 acres of land, these gentlemen acquired the land in their own names and plan later to organize a subsidiary company to handle the proposition.

In an interview with Mr. Lawrence, he said: "We purchased this land solely for the development of our production of rosin to be used for sizing paper and for turpentine. The area is well timbered for our needs and through our proposed reforestation scheme will insure us a perpetual output of 400 barrels of rosin and 175 barrels of turpentine daily. When one considers that the average rosin still turns out only 200 barrels of rosin annually, it gives some idea of the extent of our proposed operations. We will have ten stills on this property, all of which will be in operation in a short time. Two hundred men are now working, and the number of employees will be in excess of 500 in a few months.

"In addition to rosin and turpentine production, the presence of a large amount of cypress makes it profitable for us to establish a large sawmill which will produce lumber and ties.

"The plants which we have at Jacksonville and Pensacola, Fla., use distilled rosin, but at times we find the raw stock has been subjected to faulty distillation, and it is to get away from this condition that formed one of the reasons for our recent purchase. Certain qualifications are required in rosin for the proper sizing of paper. That is the grade we are aiming to secure and at all times in sufficient quantities to insure a stable market."

Mr. Lawrence further said: "Reports to the effect that we plan to erect a pulp and paper mill in the South are without foundation."

New York Salesmen Plan Busy Season

Detailed plans for a busy winter series of special meetings were announced at the Monday luncheon of the New York Division of the Salesmen's Association of the paper industry, at the meeting at the Hotel Belmont, November 23rd.

Vice-president R. C. Tilden announced the appointment of a special committee on programs for the New York Division, consisting of E. T. Simpson, of Eastern Manufacturing Co., as chairman, Endicott Rantoul of International, E. G. Lloyd of Bulkley Dunton Co., and Edwin D. Peck, acting secretary of the association.

In discussing plans for the annual convention, Mr. Peck reported that the association has already succeeded in securing one notable speaker for the annual convention, and that other details are well under way, tending to make the coming convention by far the best in the history of the organization.

Factories That Are "Hard to Heat"

CONCRETE floors, wide expanses of window glass, and large, open interior areas make many factories hard to heat. Moist, steam laden air on the inside and intense cold on the outside also causes difficulties, such as "cold spots" and damp walls and ceilings due to condensation.

The B. T. U.—Bayley Thermo Unit—provides a dry, uniform, tempered heat reaching every corner of factory space. The cold air is drawn from the floor by a powerful centrifugal fan, heated by being blown through steam coils and whirled up and out into the room.

Because it circulates the air in this manner distributing the heat uniformly, the B. T. U. overcomes the "cold spots" and damp walls and corners, common to direct radiation heating.

If your plant is "hard to heat" send for the bulletin telling how the B. T. U. will keep it warm and dry in zero weather.

Bayley
AIR ENGINEERING & EQUIPMENT
HEATING AND VENTILATING
AIR WASHING AND HUMIDIFYING SYSTEMS
MILL EXHAUSTERS—PRESSURE BLOWERS
MECHANICAL DRAFT FANS
AIR AND GAS SCRUBBERS
INDUSTRIAL DRYING SYSTEMS

BAYLEY MFG. CO., 748 Greenbush St., Milwaukee, Wis.
Please send me copy of bulletin, "The Heat Machine for Industry."
Name .....
Company .....
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City ..... State .....

FOR SALE—New modern paper mill. No equipment, ideal location. Will sell entire property for less than cost of new buildings. Write for information. Owners—THE JOHN W. COWPER COMPANY, INC., FIDELITY BUILDING, BUFFALO, N. Y.

TECHNICAL SALES WORK—YOUNG MAN, 25, COLLEGE TRAINED, WITH SIX YEARS' EXPERIENCE IN RESEARCH LABORATORY OF LARGEST PAPER MANUFACTURING ORGANIZATION IN UNITED STATES, IS SEEKING PAPER MILL TECHNICAL OR SALESWORK; WELL VERSED IN CHEMISTRY OF PAPER AND PAPER BY-PRODUCTS; PLEASING PERSONALITY, AMBITIOUS, ENERGETIC. ADDRESS "SCOPE" ROOM 606, 18 EAST 41ST ST., NEW YORK.

WANTED: FINISHING ROOM FOREMAN FOR MODERN MILL MAKING BOOK, BONDS, LEDGERS. DESIRABLE LOCATION. SEND COPIES OF REFERENCES, DETAILED STATEMENT OF EXPERIENCE AND EXPRESSION OF SALARY DESIRED WITH LETTER. ANSWER QUICK—BOX 82, THE PAPER INDUSTRY.

PAPER MILL SUPERINTENDENT WANTED

The services of a thoroughly experienced and highly efficient test liner mill superintendent are required.

Do not answer this advertisement unless your past experience fully qualifies you to meet such requirements.

Applications must give full and complete details of past experience, present employment, age, whether married or single, and salary expected.

All replies will be held strictly confidential. Reply to Box 81, The Paper Industry.

Steel Plate Construction

Steel Storage Tanks, Blast Furnaces, Gas Holders
Steel River Barges and Plate Work of all Kinds
Steel Transmission Towers

RITER-CONLEY COMPANY

General Offices, Pittsburgh, Pa.

PRESSURE PIPE THAT NEVER BURSTS
Built in sizes 1 inch to 48 inches

WYCKOFF WOOD PIPE

The Paper Industry is successfully using thousands of feet of this Pipe and they find it to be the best conveyance for Paper Stock and Acids that can be obtained.

Write today for catalog and prices

A. WYCKOFF & SON COMPANY

1855 Elmira, N. Y., U. S. A. 1925

1864 1925

"Excelsior" Felts

For EVERY GRADE of PULP & PAPER

We continue to maintain at the top the quality of Excelsior Felts, as we have done since we, as pioneers, made *the first endless paper machine felts manufactured in America.*

Seamless felts for fast running.
Satin Style felts for finish.
Special felts to meet every condition.
Send us your felt problems.

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Sold by
BULKLEY, DUNTON & COMPANY
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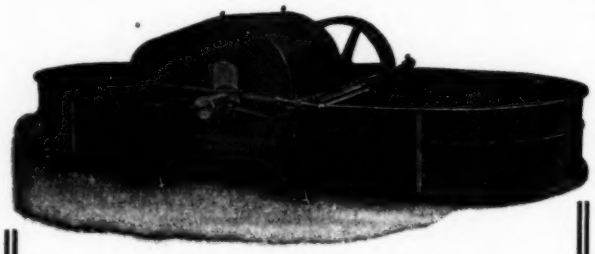

"Dayton" Beating Engines are Built for Heavy Duty

Dayton Beater and Hoist Co.
DAYTON, OHIO

Pacific Coast News

December 1, 1925.

Fire at Fidalgo Plant

The digester building of the Fidalgo Pulp Manufacturing plant, at Anacortes, Wash., was partially destroyed November 21 by fire of undetermined origin. The mill had been running a double shift since the new machinery was installed three weeks ago.

The blaze was discovered in the tower of the building that houses the huge digester. Paper ready for shipment was not damaged. Rebuilding will begin at once.

Proposed increases in freight rates were protested at San Francisco by paper manufacturing representatives of the Pacific Coast before the adjourned meeting of the Interstate Commerce Commission. The present four per cent differential in favor of eastern paper manufacturers was enough, the representatives declared.

About $2,500,000 will be required to round out the properties of the Inland Empire Paper Mill, at Millwood, Wash., in the next five years. This announcement was made at the weekly Chamber of Commerce luncheon by Judson G. Rosebush, president of the Inland Empire Paper Company and the Patton Paper Company of Appleton, Wis. Mr. Rosebush declared that during the last seventy months the company has put more than $1,300,000 new money into its property and has doubled its capacity.

Zellerbach Building Seattle Warehouse

A four-story reinforced concrete office and warehouse building will be built for the Zellerbach Paper Company at the northeast corner of First and Avenue South and Atlantic street, William Guthrie, manager of the Seattle branch, has announced. Construction will start December 1. The building will cover a site 120x150 feet and will have about 75,000 feet of floor space, double the present area occupied by the branch at 807 Western avenue. The company is now forced to use 10,000 feet of outside storage space.

The Zellerbach Paper Company owns the Washington Pulp & Paper Corp., Port Angeles, Wash., and the Northwest Power & Light Company in the same city. The company entered Seattle territory fifteen years ago when it purchased the Richmond Paper Company.

Contract has been awarded for the construction of a new two and three-story Kraft mill for the Crown-Willamette Paper Co., at Camas, Wash. The estimated total cost will exceed $1,500,000; production will be 60 tons of Kraft pulp daily.

The Alaska Pulp & Paper Co. has opened offices at 321 Dexter Horton building, Seattle.

Testing Eucalyptus Pulp Qualities

Dr. Navarro de Andrade, chief forester for the State of San Paulo, Brazil, is at the Forest Products Laboratory, Madison, Wis., to observe pulping trials of a quantity of South American eucalyptus which he has shipped from Brazil for the purpose.

It is not certain that eucalyptus will produce paper other than that of "book" grade, although even Brazilian made book paper, because of a tariff on newsprint, may undersell imported paper of news grade on Brazilian markets.

The Manitowoc Engineering Works, Manitowoc, Wis., have just completed the shipment of six diffuser tanks, 11'x18'3" to the Calcasieu Sulphate Paper Co., Elizabeth, La. This will be followed shortly by a shipment of one incinerator and seven jacketed blow pipes.

The Locke Regulator Company, Salem, Mass., has opened an agency at 62 Washington street North, Boston, where they will carry a stock of damper regulator parts such as pilot valves, diaphragms, cup packings, etc.

Ohio News

December 1, 1925.

Miami Superintendents Hold Meeting

The Miami Division of the American Pulp and Paper Mill Superintendents' Association held their regular monthly meeting on Saturday evening, November 28th, at the Manchester Hotel, Middletown.

A fund of valuable information was given to them by A. S. Wells, of the Champion Coated Paper Co., Hamilton, whose address was based upon the many daily problems which confront the superintendent in the performance of his duties. This was followed by a round table discussion in which the entire gathering took part.

Champion Mill Entertains Printing Craftsmen

Sixty-five printing craftsmen from Milwaukee, Wis., visited the mills of the Champion Coated Paper Co., Friday, November 27th, and studied the modern equipment which turns out high grades of paper.

Champion officials entertained the visitors at luncheon at the Hamilton Club and that night took dinner at the Sinton Hotel, Cincinnati, after which they attended a theater. The trip was arranged by A. V. Fitzgerald, former superintendent of the Republican Publishing Co., Hamilton, now president of the Milwaukee club, and who accompanied the visitors.

The Falls Clutch & Machinery Co., of Cuyahoga Falls, O., has been purchased by the Kent Machine Co., Kent, O. Both firms are well known in their respective fields and a great deal of interest is manifested in their consolidation.

Allis-Chalmers Mfg. Co. is opening a branch sales office at Houston, Texas, in charge of R. I. Moore, who was previously located in their Dallas office. After the first of the year, the office will be located permanently at 1108 Post Dispatch Building.

Paper Mill Machinery

SUPER CALENDERS

Two Norwood 54" with cotton rolls
Three Holyoke 66" with paper rolls
One Holyoke 45" with paper rolls

REAM CUTTERS

One 48" Acme
One 44" Seybold Twentieth Century
One 44" Seybold Holyoke
One 38" Seybold Twentieth Century

WINDER & SLITTERS

One 120" Warren two drum
Two four drum Moore & White
One 103" Beloit two drum
One 72" Moore & White four drum
One 72" Langston two drum
One 60" Kidder two drum
One 26" Kidder

SHEET CUTTERS

One 84" Moore & White
Two 70" Moore & White
Two 60" Hamblet
Five 56" Hamblet
One 54" Moore & White
One 48" Hamblet

LAYBOYS

One 102" Erie
Four 56" Erie

For sale by

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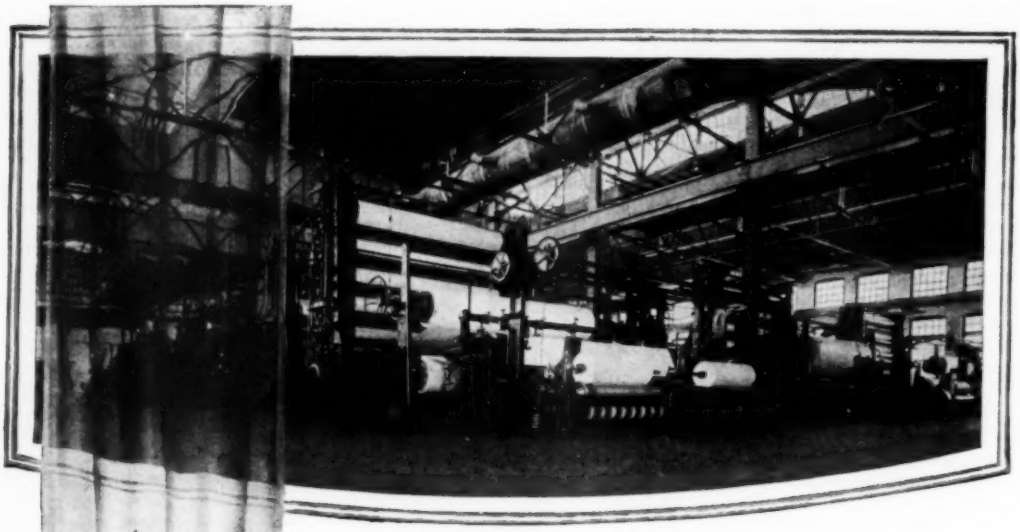

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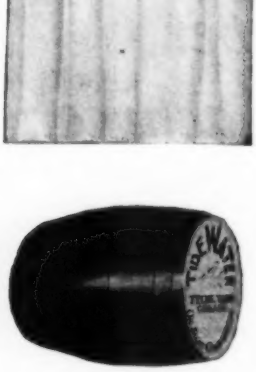

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Technical Developments in the Paper Industry

Domestic and Foreign

The following abstracts are of the latest developments found in the foreign press and the domestic and foreign patent offices. Photostats and translations of complete articles and patents can be obtained at cost price.

Chemistry of the Soda Cellulose Process

KLASON was the first to investigate in a scientific manner the character of the chemical action of sulphide-containing sodium hydroxide on cellulose in comparison with that of straight sodium hydroxide lyes. But it has only been in the past few years that comparative experiments have been made on this process. For example, Sutermeister found that the sulphate method which was used on American aspen and pine wood, gave yields which were from eight to ten per cent higher than those which were obtained with the soda method and at the same time a pulp of easier bleaching properties was secured. Wells arrived at the same results when white spruce was treated in this manner.

On the other hand, Arrhenius has treated this problem from a number of different standpoints in a much more comprehensive fashion. He showed that the sulphide of sodium lye has an action on the wood incrustating substances which is similar to that of sodium hydroxide of equal concentration. On the other hand, the sulphide of soda does not attack the cellulose itself so strongly as does the caustic soda lye. The result is a higher yield of higher grade product. Sulphate of soda which contained approximately forty per cent of sodium sulphite was found to possess a higher solvent power, amounting to eleven per cent, on the incrustating wood substances, than an equivalent amount of sodium hydroxide, while at the same time the cellulose is attacked by the sulphide solution in a degree of about thirty per cent less than the action of the caustic soda.

The author (Erik Haegglund) of the article which appears in Pappers-och traevaru-tidskrift foer Finland, 13, 14, page 361, 1925, commenced his series of experiments on this interesting subject by starting with certain developments which were made by Arrhenius. He carried out a series of digestions and the pulps that were obtained were analyzed for their lignin content to determine the degree of decomposition and disintegration that had taken place in the process. In this experiment, a caustic soda lye was employed and also a sulphate lye containing twenty-five per cent of sulphide of soda, figured on the total weight of the alkali present. In order to obtain a relatively easy-bleaching stock with a lignin content of less than approximately four per cent and a bromine number of greater than 0.1 to 0.15, the disintegration of the wood according to the sulphate method is more advisable. The reason for this is that for equal degree of disintegration greater yields of pulp are obtained. In the preparation of kraft pulp with a yield of 48 to 50 per cent under similar conditions the lignin content of the sulphate pulp is not less than what is contained in the soda cellulose.

The degree of composition of the wood is not the only factor that determines the strength of the fibers. The latter is characteristic of kraft pulp in conjunction with the hardness of the pulp. The hardness of the pulp may be determined by establishing the degree of beating after different periods of time in the Lampen mill. Sulphate and soda cellulose of approximately the same degree of disintegration give beating curves which practically coincide, which means that the hardness of the pulps is about the same.

An increase in the amount of sulphide of soda about three to four per cent, figured on the weight of the wood brings about no corresponding increase in the bromine number or any greater decrease in the lignin content of the pulp. In case of the commonly used alkali ratio, that is, thirty grams to one hundred grams of wood, there is consequently a greater sodium sulphide content in the white liquor than 15: 20 per cent of the total quantity of effective alkali is not necessary. The addition of sodium sulphite up to a limiting proportion of thirty per cent has a certain action, but on the other hand, it is not in the same degree as sodium sulphide and does not possess the same favorable action on the disintegration process.

Sodium acetate in very high concentrations has the effect of reducing the decomposing properties of the alkali, and when 20 grams of acetate are present in the liquor to one hundred grams of wood the disintegrating action of the alkali in the liquor is scarcely noticeable. Both in the case of disintegration with sodium hydroxide as with a mixture of sodium hydroxide and sodium sulphide the yield curves approach asymptotically a value of forty per cent of the wood content.

The addition of increased proportions of sodium sulphite has the effect of lowering the yields, while the addition of sodium acetate at the rate of ten grams per hundred grams of wood has the effect of increasing the yields, amounting to 1.5 per cent on the weight of the original wood. On the other hand, the lignin content is not increased in corresponding proportion.

When pine wood is digested with sodium hydroxide alone, then the consumption of the caustic soda increased from approximately 14 to 17 per cent on the weight of the wood, when the alkali ratio is increased from 0.27 to 0.36. When larger proportions of sodium acetate and sodium sulphite are added, then the alkali consumption is not changed. The latter is partially consumed during the digestion process (this consumption is apparently a linear function of the quantity of sulphite added). Even in the first hour of the digestion, which means at a comparatively low temperature, approximately half of the alkali that is required for carrying out the process has been consumed. This was determined in a test made by titrating the liquor, using phenolphthalein as an indicator.

The additional consumption of alkali is apparently caused by the phenol residue from the lignin as well as by the resinic and fatty acids that are found in the liquor. During the digestion there are formed acetic acid and formic acid and also saccharic acids from the easily soluble carbohydrates that are present in the wood, and these acids cause a certain consumption of alkali.

Approximately between seventy and eighty per cent of the lignin that goes into solution during the digestion process can be precipitated, as alkali lignin, by acidification with the aid of an excess of strong hydrochloric acid.

In an earlier study which was made on the digestion process, the amount of these alkali-lignin derivatives was found to be small. The author did not have an opportunity to study the proposition whether these alkali-lignins were formed at the beginning of the digestion rather slowly in comparison with the other lignins or whether the alkali lignin is formed from a primary precipitable lignin.

Lime and Glauber Salt in Paper Making

AN INVESTIGATION was made and reported in Le Papier on the use of lime and Glauber's salt in the manufacture of pulp. It was found that a mixture which consisted of three parts by weight of caustic lime and twenty parts by weight of Glauber's salt had as great a decomposing and disintegrating action on the paper stock as a mixture of ten parts by weight of caustic soda in a ten per cent aqueous solution. These comparative tests were carried out on ten parts by weight of dry straw. It was also shown that when

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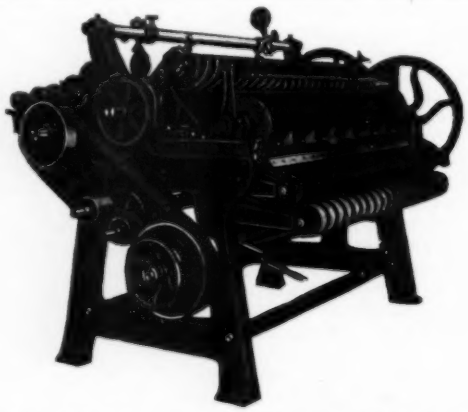
See page 391 in the 1925 Paper and Pulp Mill Catalogue



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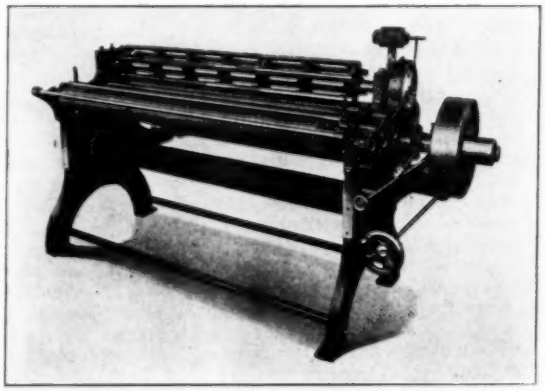

Drum Winder Toilet Machine

THIS machine winds a hard roll. The winding shaft rotates between two drums. The slitters are located in one drum. Various lengths of collars can be furnished for the slitter drum to accommodate different lengths of rolls desired.

Two core shafts are furnished with each machine, also two back stand shafts for Jumbo Rolls. The machine is ball bearing throughout, including the drive pulley.

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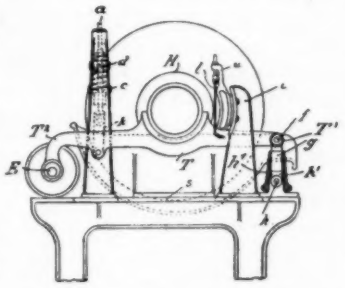
this treatment was carried out on the straw on a large scale, it was possible to obtain a finished pulp which was marketable. In this connection, it must be mentioned that the presence of Glauber's salt in excess in the digestion liquor has the effect of retarding the action of this salt on the caustic lime to form caustic soda. The net result then is that the yield of pulp is diminished, which happens, for example, when common salt is added to the digestion liquor.

Rotary Knot Remover

THE wire sieve in rotary screen devices which are used in the paper industry and in which the action takes place in the form of movement in a circular or elliptical path, are usually provided with arms which are controlled at the one end by means of springs which act in the opposite direction, while at the other end the arm is connected by means of lever to an eccentric. This arrangement makes it possible to give the drum a circular or elliptical motion, which, of course, assumes a proper relationship between the various weights of substances that are concerned with this operation. This makes it necessary to design these apparatus in such a fashion that the dimensions are dependent on the operating conditions, and, therefore, the equipment can be used within limited scope only.



In order to do away with this disadvantage, the ends of the arms to which the screen drum is connected and which are driven are connected in a positive manner with the driving apparatus.

As may be seen from the figure in the new arrangement, the end (T^1) of the carrying arm (T) of the screen drum are connected by means of the bolt (f) with a bell crank lever (g) which is rotatable around a fixed point (h), and on both sides of this lever there are found leaf springs (h^1). Then according to the invention, the other end (T^2) of the carrying arm (T) is directly connected with the driving member, for example the eccentric (E).

The peculiar movement of the carrying arm (T) causes at times a locking of the supporting device which is provided with springs, due to the fact that the rod (a) which works in the guides (c) and (d) and which acts on the screw springs is directly connected with the carrying arm (T). This disadvantage is removed by making the rod (a) fixed to the bell crank (k) before connecting it to the carrying arm.

In order to regulate the rotating shock which is given to the screen drum and which results in oscillating motion of this drum, a device (u) is screwed on to the upright supporting arm (i). As may be seen, this device is provided with a leather band (l) which is subject to tension. The leather band is therefore held tangential to the neck of the drum shown at (H). This leather band then takes the shock of the motion. The pressure of this leather band against the neck (H) of the rotating drum allows a very accurate control to be exercised over the rate at which this apparatus rotates.

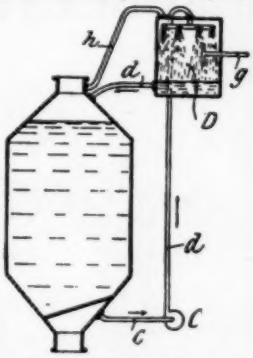
For further details see German Patent, No. 411,351.

Figured Papers

IN BRITISH Patent, No. 237,828, there is described a process for the manufacture of figured papers, and especially of papers that are suited for making bonds and securities, cardboards and the like. These papers are formed of particles of finished or unfinished papers or other substances which are added to the pulp to the paper. In the process, the additional matters—that is, the paper, celluloid, artificial silk and the like—are subjected, before being added to the paper, to a chemical or physical treatment. Thus for example, these substances may be mercerized, parchmentized, turned into viscose, paraffined, lacquered, varnished, metallized, etc. The particles that are added may also be provided with figures and designs by printing them with colored designs, numbers, letters, and the like.

Direct Heating of Liquor in Digester

IN THE accompanying illustration there is shown an apparatus which is patented in German Patent, No. 413,269. This apparatus has for its purpose the direct heating of the digestion liquor which is kept in constant motion during the progress of the digestion process.



When steam is introduced directly into the digestion, liquor which is employed in the manufacture of sulphite cellulose, due to the condensation of the steam, loud noises and considerable impact are obtained and the gas is driven out of the liquor. This disadvantage may be prevented by effecting constant circulation in the digestion liquor and then allowing the heated liquor to enter the digester in the form of a rain. And the steam is brought into contact with the finely divided digestion liquor so that very close and complete contact takes place on all sides.

Thus it may be seen from the figure that the heating can be carried out in a separate container (D) and after the liquor is heated it can be made to re-enter the digester at the top. A pump is provided for maintaining circulation.

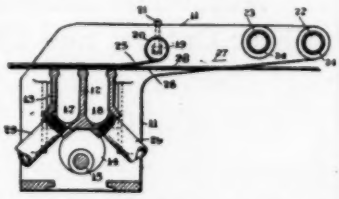
Paper Sizing Process

THE method of sizing paper which is described in United States Patent, No. 1,558,845, is distinguished by the fact that the precipitation of the rosin in the size is withheld until after the action of the beating engine is completed.

Then again, in United States Patent, No. 1,558,846, a paper sizing process is described in which the pulp is treated with rosin emulsions and colloidal aluminum hydrate, and then after the rosin emulsions have been coagulated, sulphate of alumina is added.

Washing Paper Felts

THE apparatus which is seen in the accompanying illustration and which is patented in United States Patent, No. 1,560,331, is employed in the washing of paper machine felts.



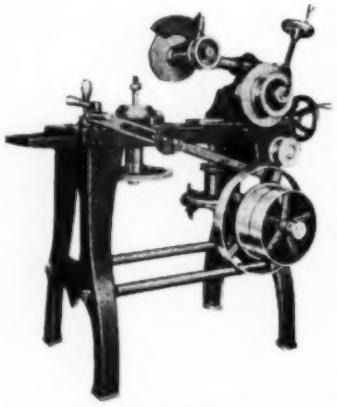
The apparatus consists of a suction box which is arranged in such a manner that it can engage with the face of the felt as it passes over the box. Above the suction box, there is placed a flexible sealing device and this also makes contact with the felt. Means are provided for rolling the flexible member clear of the felt when it is not in use. The machine is also provided with a number of guide rolls which direct the felt in its passage over the suction box.

Testing the Strength of Pulps

THE difficulties that are encountered in the manufacture of paper which possesses uniform strength throughout are removed when the stock in the beater is permitted to attain a thoroughly slow condition of beating, so that it is in the condition to be made into parchment. If the paper gives a good blister test, then the maximum strength is attained as well. In the original article, which is published in Papierfabrikant, 1925, pages 525 to 529, there are given the details of the testing method and of the results that were observed with it.

In this method of testing, it was found that the maximum deviation of the strength of the paper from the mean averaged about 2.2 per cent. The maximum value of the tearing length with different qualities of stock corresponds very well with the blister test. It is immaterial whether the stock has been strongly or weakly beaten, the maximum strength figures

Most Every Paper Mill Has Koegel Equipment



THE STANDARD
Capacity—8½-inch Diam. Slitters

Specifications: Floor space, 27"x 42"; speed of spindle, 55 revolutions; driving pulley, 9"x2½"—speed, 400 revolutions; emery wheel, 7"x½"—speed, 3,000 revolutions; weight, about 425 lbs.

Over 800

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For Greater Capacity

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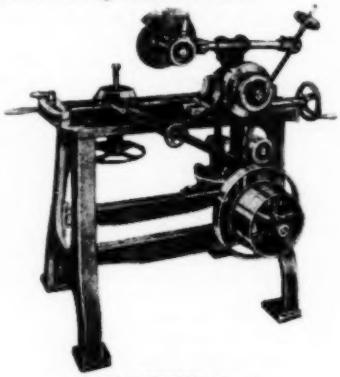

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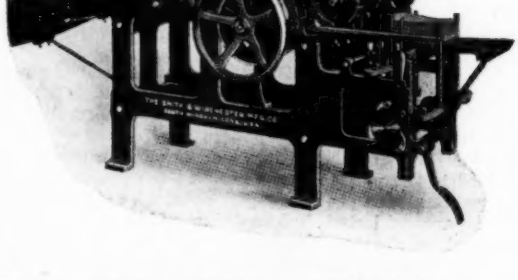

Paper Bag Making Machinery

are obtained at corresponding durations of beating. When the tests were repeated, the error was found to be 3.8 per cent. In determining the value of a chemical pulp in addition to the strength, it is necessary to know as well the lignin content (the chlorine consumption number) and the pentosan content.

Control of Beating

ONE of the most important and perhaps the most troublesome operations that must be carried out in the manufacture of paper is beating the stock. The details involved are very intricate, as every paper man knows. Not the least of these difficulties has been the development of suitable methods of controlling the beating operation so that it is possible not only to tell when the beating should be concluded but also to acquire some idea of the progress of the beating from time to time as it is going on.

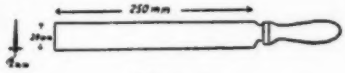

Figure 1

In an article published in the French paper journal, Le Papier, 1025, pages 547 ff. there is described a method for controlling the beating operation which was invented by Hoffman Jacobsen. It is known, of course, that the practical man —the beater who knows his job—can tell very well how the beating is progressing by merely sticking his hand into the beater and drawing out some of the stock and getting its "feel." Then again, he sometimes holds his hand in the current of stock and determines just how much of the fibers are retained.

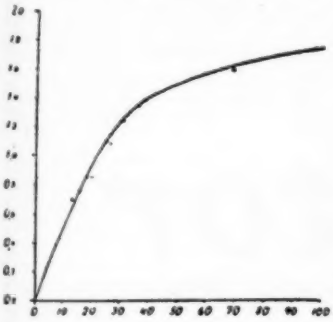

Figure 2

The new method permits the rapid determination of the degree to which the pulp has been beaten and affords an accurate means of controlling the entire process. The apparatus which is employed is a very simple one and is shown in Figure 1. It consists of a brass or bronze blade 25 centimeters long made in special form. A balance is also employed. The edge of the blade must not be sharp. The balance used may be of the kind that is employed in the weighing of letters to determine the correct amount of postage. The balance scale should read up to fifty grams and should be divided into half grams.

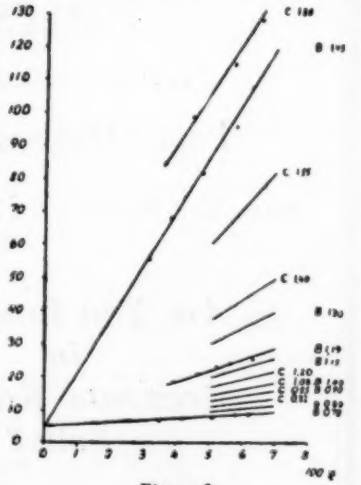

Figure 3

The manner of using the apparatus is as follows: The blade is inclined at an angle of 45 degrees and is plunged into the pulp at a speed of eight to ten meters per second, the blade edge held forward. The fibers that are held by the sides of the blade are then removed with the finger and only those which are actually held by the edge are allowed to remain. The operation is repeated four times and the fibers obtained in these four operations are then weighed and converted into grams per meter.

The test also permits the determination of the length of the fibers in the pulp, and when the lengths of fiber are plotted as ordinates and the weights in grams per meter as abscissae, the curve shown in Figure 2 is obtained. In this case the density of the pulp-water mixture is six per cent. In Figure 3 there are shown a number of curves which indicate the effect of the density of the pulp on this relationship. In this case, the weights in grams per meter are plotted as ordinates and the density is abscissae. The symbol C refers to chemical wood pulp and the symbol B to a rag pulp.

Another interesting figure, see Figure 4, shows the relationship between the weight of fibers that is caught on the blade and the time of beating.

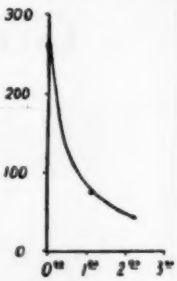

Figure 4

Ionic Reactions in Sulphite Manufacture

IN THE article published in Der Papier Fabrikant, 1925, pages 445-8, and 483-6, there is contained a review of the various reactions that take place in the manufacture of pulp from wood by the sulphite process. These reactions are discussed from the standpoint of the ionic theory and are partly supported by experimental data. It is suggested that the concentration of hydrogen ions in the sulphite liquor is more effective than that of HSO_3 ions for the disintegration and solution of the incrustating materials. The concentration of calcium ions steadily increases relatively to the concentrations of HSO_3 and H ions during digestion and gas a decided influence on the duration of the process. Ligninsulphonic acids having widely differing dissociation constants are formed. During the process of digestion, the lime present acts as a buffer and maintains the concentration of hydrogen ions within limits which are not harmful and do not allow the formation of dark colored pulp.

High Grade Sulphite Pulp

ACCORDING to the process which is patented in Austrian Patent, No. 87,808, a sulphite pulp is manufactured which contains a very large proportion of alpha cellulose, up to approximately ninety per cent, which makes a pulp of very high quality. The process is carried out as follows. The wood which is prepared in the usual manner is treated with an approximately one per cent sulphuric acid solution under weak pressure at a temperature of 115 degrees C. In this manner, hydrolysis of the incrustating materials and particularly the glucoside substances is effected. The acid is then removed and may be used over again. The residual material is then neutralized and is then immediately subjected to the regular bisulphite digestion, the strength of the liquor being as usual from three to three and one-half per cent sulphur dioxide. The temperature is maintained at 120 degrees C.

Washing Vegetable Fibers to Effect Quick Bleaching

THE vegetable fibers are introduced into a bath which is composed of a mixture of alkali, an alkaline salt, a metallic oxide and an alkaline hypochlorite. In this mixture the metallic oxide can be substituted for by the metal in pulverized condition. The time of treatment varies between twelve and twenty-four hours. Thereafter the fibers, after being washed, are introduced in the hot condition into a solution of sulphuric acid and allowed to remain there for a few minutes. The last step in the process is a thorough washing. Austrian Patent, No. 93,924.

Sulphite Cellulose Manufacture

THE process, which is patented in German Patent, No. 411,304, is concerned with the manufacture of sulphite pulp of a high state of purity which fulfills all the chemical and physical requirements of such a pulp.

The kind of sulphite pulp that is obtained by this process is absolutely free from all incrustating materials and is a very uniformly disintegrated product which has a copper number of less than 2. The process consists in giving the sulphite pulp that has been obtained from the first digestion a second and in certain cases a third digestion with calcium bisulphite or magnesium bisulphite liquor.

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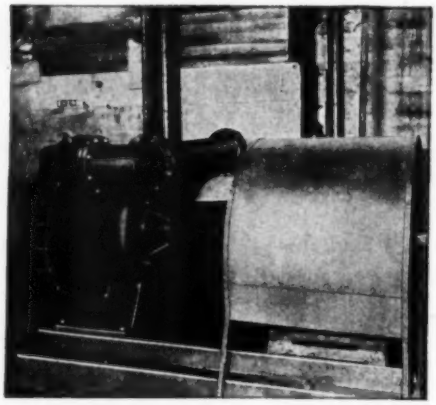

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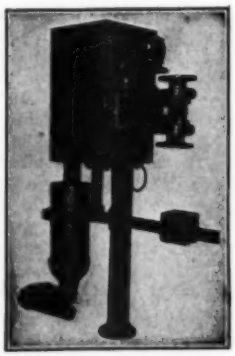
VACUUM PUMPS AND COMPRESSORS

See page 383 in the 1925 Paper and Pulp Mill Catalogue



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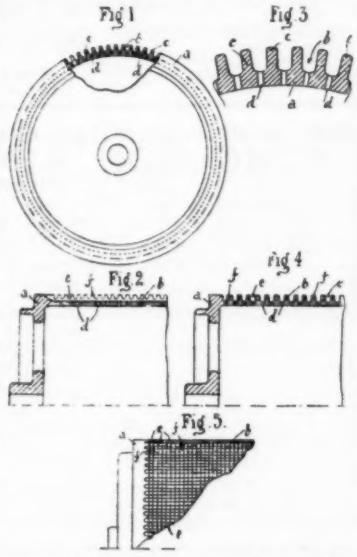
Endless Metallic Wire for Paper Machines

THE object of the invention which is patented in French Patent, No. 594,796, is a metallic wire, endless and without a seam, for the manufacture of paper and analogous products. This endless wire belt is characterized essentially by the fact the ends of a metallic cloth which has been made by the usual methods are united by soldering or other suitable process with the result that there is obtained an endless, seamless wire belt.



Endless wire belts of this sort are employed in the manufacture of paper, of cardboard, cellulose, mechanical wood pulp and straw pulp. The endless character of the wire belt has been attained heretofore by making a seam in it.

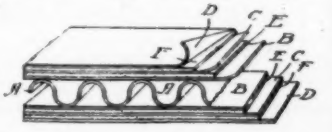
In the figures, the cylinder is seen to be constituted of a covering which is made from metal and which is connected at the end with the shaft. This covering is sufficiently strong to support itself without the need of any interior supporting frame. As may be seen from the figures, there are provided longitudinal channels (b) which support the wire. The holes (d) are drilled in these channels connecting them with the interior of the cylinder.

Swelling and Adsorption of Wood Cellulose

THE swelling of cellulosic material in water was determined by immersing strips, in size four centimeters by eight centimeters, for a period of four hours, and then draining off the water for a period of two minutes. Then the samples were weighed. Further increase in weight after a period of four hours was comparatively small and no marked difference in adsorption was found between water and one per cent acetic acid. Swelling in acetic acid is, however, more rapid. Bleached cellulose swells less than unbleached. Papierfabrikant, 1925, pages 589-95.

Composite Moisture Proof Paperboard

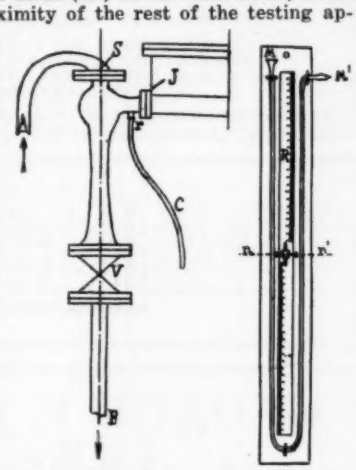
IN UNITED STATES Patent, No. 1,561,471, there is patented a process for making a composite moisture proof paper board which is shown in the accompanying illustration. This paper board comprises a sheet of corrugated board to which there is glued on one side a composite paper board which is composed of at least three sheets of paper united together by means of films of asphalt. The sheets which are next to the corrugated board are made of unsized paper and the outer sheet is of sized paper.



Testing a Suction Box

IT HAPPENS at times that it becomes necessary to test the operating effectiveness of a suction box which does not seem to be giving the proper results. This entails a loss of time on the part of the operator and at times the cause of the trouble is not even located, although considerable time has been spent on the matter. It is therefore of interest to read the method that is employed for this purpose as described in the French journal, La Papeterie, 1925, page 558.

The apparatus that is employed for this purpose is seen in the accompanying illustration. The test is made when the machine is stopped. The connection between the machine and the apparatus is made at the joint (J) and by means of a rubber tube (C), which is made of thick walls, the cock (r) is connected with one of the arms (M') of the manometer, which is suspended in the proximity of the rest of the testing apparatus, after it has been assured that the levels (nn') of the mercury in the two arms of the glass tube is at (O) of the scale (R). If it is not, it is made so by moving the manometer tubes up or down as the case may be. After this has been done the cock (r) is opened very slowly in order to avoid too sudden a depression in the mercury column, and the depression that does take place is then read off the scale. Let us imagine that the level of the mercury in the tube (M) of the manometer has descended by fifty millimeters and has risen by the same amount in the arm (M'). Then the total depression in the mercury levels is 50 plus 50 or 100 millimeters.



After this figure has been established, it is then possible to go ahead and determine the reason for the bad operation of the suction box. The machine is now operating again.

In the first place, it is necessary to be sure that the flow at the point (B) fills the entire tube and that it is regular and that no water is carried back again on the wire of the machine. If water does reach the wire again, then this would be a certain indication of the fact that the aspirator is blocked up or strongly obstructed. If the water does not flow out at (B), filling the entire tube, then this would be an indication of an obstruction or a proof that the water does not reach the point (A) in the apparatus in sufficiently great proportion. When the water comes out in jerks and starts, this indicates a certain entrance of air.

After the machine has stopped, disconnect the tubing at the point (J) and also disconnect the joint (S) which is above the apparatus. Test the condition of the internal ejector cone, take it apart and clean it if necessary. See if the water passes easily through the tube (A). Examine the valve (V) and the pipe (B). Make the joint (S) again and that at (J). Then by means of the manometer, determine if the vacuum within the system is normal. If this is not, then it will be necessary to change the suction pump and send the old one to the factory to be tested.

If it is found that the suction pump works well, then the trouble rests with the suction box itself. It is then necessary to remove it from the machine and to examine it to see if it has not developed cracks or pores. This can be told by whether or not it sweats after it is filled with water.

Waterproof and Greaseproof Paper

A WATERPROOF and greaseproof paper is manufactured by taking fibrous material and combining it with bituminous material and the product that is obtained by the treatment of sulphite waste liquor and formaldehyde. United States Patent, No. 1,561,728.

The Combustion Engineering Corporation, Limited, Toronto, has received a contract from the Bogalusa Paper Co., Inc., Bogalusa, La., to install one Ruths Accumulator of 6500 cubic foot volume with 14-inch diameter and a length of 47 feet, built for 150 pounds working pressure. The capacity of the accumulator is 40,000 pounds of steam. This is the seventh accumulator installment in the pulp and paper industry on this continent.

The Dorr Company, engineers, 247 Park avenue, New York City, has announced the appointment of E. L. Bateman, the Corner House, Johannesburg, as sole agent for their equipment in South Africa.

H. S. TAYLOR, Consulting Engineer
Member Am. Soc. C. E.—Am. Soc. M. E.—Eng. Inst., Can.
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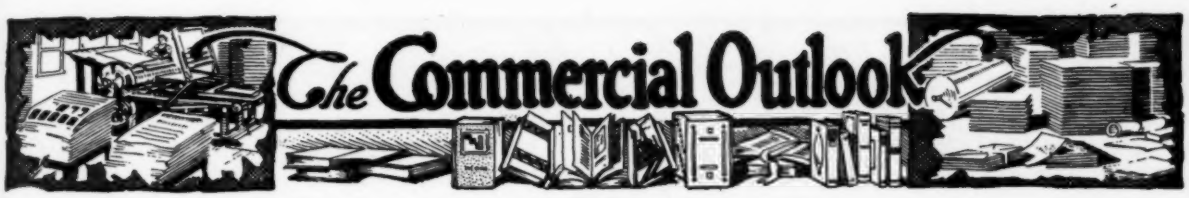

New York, December 1, 1925.

WHILE there are some spots in the paper industry where a good deal of improvement could be recorded, there is no gainsaying the market situation as a whole is active. In fact, demand for paper of most kinds is developing in a very consistent manner and in fairly heavy volume. Consumers are buying with greater freedom than has characterized their operations in a long while; a majority of paper mills are working at full capacity or close to capacity; paper is being shipped from manufacturing plants about as quickly as it comes off the machine and is made ready for the haul to consuming centers—all in all, the industry reflects quite noticeably the increasing activity in the consuming trades and the steady gain in paper consumption.

Business generally is good. This is proved to a forcible degree by the situation in Wall Street and the financial and securities markets, where industrial concern upon industrial concern in various lines has declared extra dividends and thereby created additional excitement in the stock and bond market. This boom in Wall Street is not a fictitious one but is based on the real healthy and prosperous condition of industry and trade. Most manufacturing industries are busily engaged; they are increasing their production and are finding a ready outlet for their product, and at prices which net a good profit—so good, in fact, that many of them have been able to pay their shareholders handsome bonuses in the form of extra dividends in addition to their usual payments. The outlook for a big retail movement of merchandise of nearly all kinds this pre-holiday season was never brighter. The public is spending money, wages are high and the average worker has money to spend, and the time of the year is here when money flows from the individual's pocket into trade channels. If this pre-Christmas season records retail business of the volume predicted, there is little question that business will be excellent throughout the winter because enough money will be released and sufficient merchandise absorbed to keep factories busy the remainder of the winter and therefore plenty of money in circulation.

It is no more than to be expected that the paper industry is feeling this marked improvement in general business. Paper is a commodity depending on nearly all other lines of business; when the steel manufacturer, the shoe, clothing, automobile, rubber, textile and other manufacturer and merchant is busy he consumes more paper, while more paper is used by newspaper, magazine and other publishers for advertising as well as news purposes. This is just what is taking place at present. Consumption of newsprint is up close to a record-breaking level; the consumption of book paper is mounting steadily; wrapping paper is being consumed in extensive volume, also tissue, in the retail trades; fine paper consumption is increasing as business firms do more corresponding, while the consumption of box board is rising with the increased use of boxes for packing merchandise.

Latest statistics show that production of paper is rising. Newsprint production in October probably established a new high record for a single month's output. United States mills produced 135,225 tons, while shipments from mills were 142,204 tons, and Canadian mills produced 137,506 tons with shipments aggregating 139,982 tons. Total production for the two countries in October was 272,731 tons, and shipments 282,186 tons, according to the News Print Service Bureau—representing a large increase over previous months. Stocks of newsprint at U. S. mills at the end of October amounted to 20,446 tons and at Canadian mills to 20,328 tons, making a combined total of 40,774 tons, which was equivalent to 3.7 days' average production. During October the U. S. mills operated at 90.2 per cent of capacity and the Canadian mills at 97 per cent.

Comparing production of newsprint during the first ten months of 1925, amounting to 2,592,051 tons for North America, with the same period of each of the five previous years, the U. S. and Canadian mills produced 6 per cent more than in 1924, 9 per cent more than in 1923, 20 per cent more than in 1922, 50 per cent more than in 1921, and 26 per cent more than in 1920.

Book paper production in October reached a total of 89,802 tons in the United States, according to the American Paper and Pulp Association's report, which showed an appreciable gain over previous months, comparing with 84,265 tons in September, 85,942 tons in August, 82,532 tons in July, and 84,292 tons in June. Shipments from mills in October were 89,302 tons or almost up to the full level of the production, while stocks at the end of October totaled 46,075 tons, against 45,659 tons at the end of September.

Book paper demand is expanding gradually. There are some mills seeking additional business; there are others sold up for some time ahead and refusing to take further orders except for future delivery. Mills disposing of the bulk of their output on contract are in a position where they have practically none of their product to direct to the open market, and it can be said those mills catering to the transient trade are fairly well fixed with orders although they could accommodate more business. Prices of book paper are steady to firm.

In fine papers somewhat of an unusual condition exists. There is a relative good movement of the cheaper grades of bond and ledger; on the other hand, the high-priced lines are wanted in limited tonnage. This situation whereby consumers are using the lower qualities of writing paper in preference to high-grade stock has reached a point where manufacturers who feature fine rag bonds and ledgers really are seriously in need of business. Many have been obliged to switch over to sulphite bonds, it is stated, in order to compete in their markets. Advertising campaigns are being carried on, however, outlining to business concerns and other consumers the advantages derived in using high-grade stationery and the surprisingly small difference in cost, and it is felt demand for fine papers in due time will become better adjusted where mills producing the better qualities of writing paper will secure a more equal share of the business placed.

Wrapping paper is in good demand and has been for some time past. Mills are working at a good pace, and less is heard anent the competition of imported paper in this branch of the trade. Prices are firm. Tissue also is enjoying a good demand of fairly broad proportions.

Box board has quieted down to some extent as it usually does toward the close of the year. There was quite a run of demand recently, however, and some big tonnage orders were placed, and, everything considered, demand at the moment is on a fair scale. Prices have stiffened slightly following the drop in October, plain chip board being quoted at $45 a ton delivered in New York and news board at $47.50 per ton.

Specialties are moving in good amounts and at steady prices. Fancy papers for paper box covering have been in excellent call. Building papers, including roofing felt, are in much more demand than is customary for this period of the year. Wall board is wanted in better than normal volume and is firm in price.

Emanuel Salomon, long connected with the papermaking rag trade until his withdrawal a couple of years ago to enter another line of business, and widely known to paper manufacturers as a rag and wood pulp salesman, has joined the selling staff of the Stone Bros. Company, rag importers and dealers, of 342 Madison avenue, New York, and Cleveland, O., and will be connected with the papermaking rag department, of which Herbert P. Brock is in charge. Mr. Salomon was at one time president of the National Association of Waste Material Dealers, Inc.

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Domestic Raw Materials

Papermaking Rags

According to representative dealers, the market situation in papermaking rags continues very unsatisfactory. There is a restricted demand from consuming quarters; in fact, papermakers are buying in a very sparse way, and as the year draws near to a close buyers are keeping their purchases to as small volume as their urgent needs will permit, reflecting the fact that an effort is being made to get stocks as low as possible in preparation for the inventory period. It is declared by dealers that the entire of 1925 thus far has been most discouraging and very unprofitable in papermaking rags. Other than the lowest class of stock which is used by roofing paper mills, there has been no worthwhile movement of rags to paper manufacturers. Old white rags and thirds and blues have been in slack demand all year long, and most grades of new cotton rags have been favored with little important demand. The reason for this is quite apparent. It is none other than the situation which has prevailed and is still prevailing in the fine paper market. The difference in prices of high grade bond and ledger papers of rag content and of sulphite bond papers has been so wide, consumers of fine papers have concentrated their buying on the wood grades or the cheaper qualities of bonds and ledgers. The result has been none other than that production of writing paper of rag content has fallen off considerably, so that fewer rags have been needed by manufacturers.

The supply condition, from the angle of the paper manufacturer, appears fairly favorable at present. There are doubtless sizable accumulations of certain classes of rags in the United States, particularly is this true as regards thirds and blues and some grades of old whites. On the other hand, some kinds of papermaking rags are in limited supply. There has been a good movement of roofing stock practically all year; the probabilities are by far a larger consumption of such rags has been recorded this year than ever before, and there is no gainsaying were it not for the exceptionally heavy imports of this class of rags from Europe it is no telling how high prices of roofing rags would have gone or how much difficulty mills would have experienced in covering their requirements in such rags, as it is agreed generally the collection of all kinds of old cotton rags throughout the U. S. has been on a comparatively small scale this year.

Most paper mills are at the moment purchasing only such quantities of rags as they need directly. Roofing paper manufacturers are engaging in little buying of rags for spot shipment as they are well supplied for about two months or longer. There is, however, fair interest among such buyers in foreign rags for January and February shipment from abroad, indicating roofing manufacturers are looking ahead respecting their needs. Writing paper mills are placing orders here and there for small tonnage as their needs arise; there is little or no disposition shown by them to anticipate wants. Book, blotting and other paper manufacturers are buying on a strict hand-to-mouth scale in a great majority of instances. Demand from fiber mills is slow as most of these consumers have sufficient rags on hand to last them for quite a while.

There are some bullish aspects to the present situation, nevertheless. The fact should not be lost sight of that the winter has arrived when rag collections are at the lowest. An important feature also is that available supplies of low-quality rags is unusually light, and it would not require much buying on the part of roofing paper mills to send prices of the classes of stock they consume shooting upward. This, in turn, likely would result in roofing paper manufacturers taking sizable lots of the better or medium grades of rags out of the market so that other paper mills would have smaller stocks to draw on. Another strong point is the firmness exhibited by dealers in Europe, who seem bent on securing certain minimum prices and who are reported refusing flatly bids under the rates they quote. The market abroad has steadied at certain price levels and it appears very unlikely it will go lower irrespective of in what volume demand develops over the next few weeks. Consequently, there seems every reason to believe rag prices will stiffen soon after the turn of the year provided demand from consuming quarters increases to the degree it does ordinarily after the holiday and inventory season.

Roofing rags are quoted at around 2.20 cents a pound f.o.b. dealers' shipping points for No. 1 domestic packing, and 1.90 cents for No. 2 stock. Foreign dark colored cottons are readily salable for forward shipment from abroad at 2.10 cents a pound ex dock New York, while spot lots are reported fetching 2.15 to 2.20 cents, but importers mostly want substantially above these prices, claiming they cannot buy at relative figures in Europe. Old white rags are quoted at about 7 cents a pound at shipping points for No. 1 repacked and 4.50 cents for No. 2 repacked, prices depending largely on the quality of packing. Repacked thirds and blues are available to mills at 3.75 cents at shipping points, and at slightly lower prices in some cases.

New cuttings are holding their own in price and certain descriptions are scarce and fetching firm market rates. Dealers ask 14.75 cents or higher for No. 1 white shirt cuttings at shipping points, 11.75 cents for blue overall cuttings, 14.75 cents for unbleached muslins, 6.75 cents for bathrobe cuttings, 7.50 cents for O.D. khaki cuttings, 7.50 cents for washables, and 11.50 cents for light silesias.

Average quotations f.o.b. shipping points and ex dock New York are as follows:

New Stock—	New York and Chicago
White shirt cuttings, No. 1	14.75-15.00
White shirt cuttings, No. 2	10.25-10.75
Fancy shirt cuttings	9.25- 9.75
Washables, No. 1	7.50- 7.75
Unbleached muslins	14.75-15.00
White lawns	13.50-14.00
Overall cuttings, blue	11.50-11.75
Black silesias	6.25- 6.50
Light flannelettes	12.50-13.00
Canton flannels, bleached	13.50-14.00
Canton flannels, unbleached	13.25-13.50
Shoe cuttings, bleached	13.00-13.50
Shoe cuttings, unbleached	12.00-12.50
Light silesias	11.50-11.75
O. D. khaki cuttings	7.50- 7.75
Mixed khaki cuttings	6.50- 6.75
Corduroy cuttings	6.00- 6.25
Cottonade cuttings	5.25- 5.50
Linens, No. 1 white, foreign	15.50-16.50
Light prints, extra, foreign	3.50- 3.75
Old Stock—	
Whites, No. 1, repacked	6.75- 7.50
Whites, No. 2, repacked	4.25- 5.00
Whites, house soiled	3.25- 3.50
Whites, street soiled	2.75- 3.00
Lace curtains	6.50- 7.00
Thirds and blues, rough	2.25- 2.50
Thirds and blues, repacked	3.50- 3.75
Black stockings	4.50- 4.75
Cotton canvas, No. 1	5.75- 6.25
White cotton batting	4.40- 4.60
Roofing, No. 1	2.15- 2.25
Roofing, No. 2	1.85- 2.00
Dark colored cottons, foreign	2.10- 2.20
Blue linens, foreign	5.25- 5.50
Gray linens, foreign	5.50- 6.00

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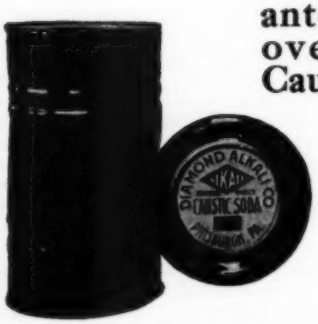

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White linens, foreign	10.00-10.50
Light prints, extra, foreign	3.25- 3.50

Rope and Bagging

Old bagging of every description is strong in price, tending higher, and difficult to locate in customary volume. The situation in this material goes back to the bullish raw jute situation in India where a much lower than average crop of the fiber has been produced this season and where prices of jute have been run up to levels exceeding records of all time. The very large cotton crop in the United States has led to a tremendous consumption of bagging for wrapping cotton bales, and has removed big quantities of bagging from the market which otherwise would have been available to paper mills. The outlook is bullish and it would appear as if old bagging is destined to remain high in value and in limited supply for some months to come, probably until well into next year when the next jute crop begins to come forward.

Sales of No. 1 scrap gunny bagging have been made to consuming mills at 4.25 cents per pound at shipping points and ex dock New York; in fact, it is doubtful if purchases can be made under this price basis at present. It is known, for instance, that dealers have paid 4.12½ cents to cotton mills for their 1926 accumulation of old gunny. No. 1 scrap bagging is quoted at 3 cents or higher at shipping points, some of the better packings being held for 3.25 cents. Roofing bagging is quoted at 1.90 cents a pound, f.o.b. or ex dock New York.

Old rope, on the other hand, has eased and prices are on a substantially lower level. No. 1 domestic manila rope is reported available to paper mills at 6.25 cents a pound at dealers' shipping points, and foreign No. 1 old rope at 5.50 cents ex dock New York. Perhaps some purchases have been made below these figures. Strings are in limited demand but about steady in price.

F.o.b. shipping point and ex dock New York quotations follow:

	New York and Chicago
Gunny, No. 1 domestic	4.25-4.50
Gunny, No. 1 foreign	4.25-4.50
Scrap bagging, No. 1	3.00-3.25
Roofing bagging	1.90-2.00
Wool tares, heavy	4.25-4.50
Wool tares, light	4.00-4.25
Manila rope, No. 1 foreign	5.50-5.75
Manila rope, No. 1 domestic	6.25-6.50
Sisal strings	3.00-3.25
Mixed strings	1.75-2.00

Old Paper

Dealers report that the same unsatisfactory condition noted for some time continues to obtain in the old paper market. There is a restricted demand from consuming quarters. Board manufacturers and other users of waste paper seem to be in need of smaller tonnage of most grades than ordinarily, and are keeping their purchases down to bare necessities. Prices are at a point, according to representative packers and dealers, where little profit is to be realized in handling old paper, and this in spite of curtailed collections and possibly a smaller supply of many grades than usually is available.

Shavings are quoted at around 3.65 cents per pound, f.o.b. shipping points, for No. 1 hard white, and 2.90 cents for No. 1 soft white shavings. These are prices named by dealers on the usual run of packing; of course, special quality stock is quoted at much higher figures. Flat stock is in very slow demand; perhaps there is a relatively narrower call for heavy books and magazines than any other description of old paper, and No. 1 books are reported available to mills at as low as 1.05 cents a pound at shipping points. Ledger stock is quoted on a range of 1.50 to 1.70 cents a pound, depending on the quality of packing. Old kraft paper is selling at about 2.25 to 2.40 cents, white blank news at 2 cents, and No. 1 manilas at 85 cents a hundred pounds.

Folded newspapers have enjoyed a fairly active demand from board mills and prices of this grade of stock are steady at 70 to 80 cents a hundred pounds, f.o.b. shipping points. No. 1 mixed paper is quoted at 50 to 60 cents, and common mixed at 30 to 35 cents.

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The following are prices f.o.b. shipping points:

	New York and Chicago
Hard white shavings, No. 1	3.60-3.80
Hard white shavings, No. 2	3.00-3.25
Soft white shavings	2.85-3.10
Colored shavings	1.15-1.30
Heavy book, No. 1	1.05-1.20
Crumpled book, No. 1	.80- .90
Ledger stock	1.50-1.70
Kraft, No. 1	2.25-2.40
Manilas, No. 1	.85-1.00
White blank news	2.00-2.10
Over-issue news, No. 1	.80- .90
Folded news	.70- .80
Sulphite mill wrappings	.75- .85
Mixed paper, No. 1	.50- .60
Common paper	.30- .35

Pulp Wood

Reflecting activity in the ground wood and pulp market generally, a good demand prevails for pulp wood, consumers in various quarters inquiring freely and ordering supplies in good volume. Reports say that some large contracts have been placed recently for shipments next year, and there appears every reason to expect a steady market condition for some time to come. Prices at up-State points in New York are about $18 to $19 per cord for peeled wood and $22 to $23 a cord for 2-foot rossed wood.

Exports of pulp wood from Canada in October last were valued at $1,066,595, which showed a slight decline from the value of exports during October last year.

Mechanical Pulp

Ground wood is moving in a steady manner and in sizable volume, and the market tone is characterized by much firmness. In fact, there is an upward tendency in prices and in some districts producers have advanced quotations slightly. Statistically, the situation appears very strong. Production of mechanical pulp is on the downgrade, since grinders are having trouble with low water in some cases and freezing streams in other instances, whereas consumption is on the rise and mill stocks are decreasing. Moreover, a majority of manufacturers are themselves using very large tonnage of ground wood at present and therefore have limited amounts to direct to the open market, while producers generally are conserving such stocks as they have on hand against their own requirements. It is stated, in fact, that consumers who depend on open market purchases to cover their wants are, in most instances, obliged today to look to Canadian mills to supply their needs, with the result most of the business recorded involves ground wood from across the Dominion border.

Domestic manufacturers are quoting in the vicinity of $30 a ton or higher for prime spruce ground wood, f.o.b. pulp plants, some quotations ranging up to $35, it is said. Grinders in Canada ask about $30 per ton at shipping points though it is reported some supply is available in the Dominion at slightly less, prices depending on the air dry test and the freight to consuming centers. The trade generally is bullishly inclined regarding ground wood, and substantially higher prices are forecast for this winter provided consumption keeps up at the rate of the last couple of months.

Chemical Pulp

Not in a long time have domestic manufacturers of wood pulp been in so favorable a position as they now are. Orders for the various classes of pulp are coming in freely and for good-sized tonnage, and most producers are so well fixed with commitments they are practically sold out for a considerable period ahead, and in quite a few instances are increasing their production so as to be able to take care of more customers.

The demand for pulp is exceedingly active. Paper and board manufacturers who are experiencing some difficulty getting all the foreign pulp desired are looking to U. S. mills to supply their wants, and are purchasing domestic pulps in steadily increasing volume. What is especially gratifying is that the outlook never was rosier. There seems every reason to believe a very tight supply situation is destined to develop in Scandinavian pulps, if not this winter then cer-

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The uniformity of the product, the entire freedom from grit, dirt and other impurities make Crown Filler the highest grade of filler available to the paper manufacturer.

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Along about Christmas time every year, we all of us sort o' mellow up and have a kindlier feeling for all mankind. Wouldn't it be a fine thing if we could carry the Christmas spirit right along through the year? It sure would help a lot—nobody would be the loser, everybody would be the gainer, and do you know, folks, that is just what we are trying to do in our business, viz: giving every customer, little and big, a square deal all the time.

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White sulphite	11.30
Colored rag	15-40
Colored sulphite	10-30
Ledger—	
White rag	17-40
White sulphite	13-30
Colored sulphite	12-30
Colored rag	16-40
Bonds—	
White rag	16-40
White sulphite	9-30
Colored sulphite	9-30
Colored rag	15-40
Book—	
No. 1 S. & S. C.	6.50- 8.00
Machine finished	6.00- 8.00
English finished	6.25- 8.00
Coated and enameled	8.00-14.00
Lithograph, M. F.	9.00-15.00
Newsprint—	
Rolls, contract	3.25- ....
Rolls, transient	3.50- ....
Sheets	3.75- 4.00
Side runs	3.00- 3.25
Cover Stock—	
Coated, both sides	10.25
Coated, one side	10.15
Tissue—	
No. 1 white, 20x30	.80- .90
No. 2 white, 24x36	.75- .80
No. 1 manila, 24x36	.75- .80
Kraft	.90- 1.00
Wrapping—	
No. 1 Kraft	5.75- 6.50
No. 2 Kraft	5.25- 5.75
Boards—	New York and Chicago
Solid news	50.00-55.00
Straw	50.00-55.00
Plain chip	45.00-50.00
White coated chip	60.00-65.00
Manila coated chip	55.00-60.00
Binder's board	70.00-75.00

Chemical Pulp

(Continued from page 1501)

tainly sometime later next year, and it stands to reason if consumers in the U. S. are unable to get the foreign pulp wanted they are going to use domestic and Canadian pulps.

Prices are stiffening along with the gradual rise in imported pulp. No. 1 bleached sulphite is quoted at a minimum of 4 cents per pound, f.o.b. pulp mills, and some grades of bond paper sulphite are selling at 4.50 and 4.75 cents a pound. Unbleached sulphite of No. 1 quality is quoted at around 3 cents at producing plants, news grade sulphite at 2.80 cents, and easy bleaching sulphite at 3 to 3.25 cents. Bleached soda pulp is fetching 3.50 cents at pulp mills, and No. 1 kraft around 3 cents.

F.o.b. pulp mill quotations are as follows:

Bleached sulphite	4.00-4.75
Easy bleaching sulphite	3.00-3.25
Unbleached sulphite, No. 1	2.85-3.10
News grade sulphite	2.70-2.85
Soda pulp, bleached	3.50-3.75
Mitscherlich, unbleached	3.25-3.75
Kraft, No. 1	3.00-3.25
Screenings, refined	1.50-1.75

Chemicals

Leading activity in the chemical market at present comprises the arranging of contracts between paper and pulp manufacturers and chemical producers for 1926 supplies. Prices on the various commodities are steady to firm, and most of the changes recorded are in an upward direction. Bleaching powder is firm at from 2 cents a pound upward, f.o.b. works, for bleach in large drums. Casein is quoted at 13 to 15 cents a pound, domestic grades ranging from 13 to 14 cents and foreign around 14.50 cents. Caustic soda is selling at 3.10 to 3.15 cents per pound for spot shipment, f.o.b. works.

Average quotations are as follows:

Alum, lump ammonia	3.50- 3.75
Alum, lump starch	3.75- 4.00
Blanc fixe, powder	3.75- 4.25
Bleaching powder	2.00- 2.40
Brimstone (long ton, at mine)	15.00-16.00
Casein (duty paid)	13.00-15.00
Caustic soda, spot delivery	3.10- 3.15
China clay, domestic washed	12.00-16.00
China clay, foreign	15.00-20.00
Rosin, grade E	15.55- ....
Satin white	2.00- 2.25
Soda ash, 58 per cent light (bags)	1.38- ....
Starch, papermakers', in bags	3.32- ....
Talc (ton)	17.00-18.00

Chemical Bibliographies

A Bibliography of Bibliographies on Chemistry and Chemical Technology, 1900-1924, by Clarence J. West and D. D. Berolzeimer, is announced by the National Research Council, Washington, D. C., as their Bulletin No. 50 (308 p., $2.50). This work is composed of the following sections: General Bibliographies, Abstract Journals and Year-Books, General Indexes of Serials, Bibliographies of Special Subjects and Personal Bibliographies.

As the title indicates, the work is a compilation of bibliographies published as separates, or at the end of books or magazine articles, or as footnotes to the same, on the numerous aspects of pure and applied chemistry. Each entry gives name of author or compiler, title, and place of publication. The majority of the entries state the number of references, thus giving an indication of the completeness of the particular bibliography. The entries are classified under the proper subject-headings, alphabetically arranged. The duplication of individual entries has been largely avoided by the liberal use of cross-references. An approximate analysis shows that there are about 2,400 subject-headings, 7,500 author entries and a total of 10,000 individual bibliographies.

Although no claim is made for the completeness of the compilation, it is believed that the work will furnish a convenient starting point for any bibliographic search.

New Secretary for Salesmen's Association

At the meeting of the Executive Committee of the Salesmen's Association of the Paper Industry, at 15 William street, New York City, on Thursday, November 19th, the resignation of Warren B. Bullock as secretary of the association was accepted, and Edwin D. Peck elected acting secretary to fill the vacancy.

The resignation was accepted in order to leave Mr. Bullock more free to attend to the duties of manager of the Import Committee of the American Paper Industry, which was formed in 1924 as a result of the activity of the Salesmen's Association.

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EXPORTS

After a slight decline in August, exports of paper and paper products from the United States showed a gain during the month of September, according to the Paper Division of the Department of Commerce. Paper exports for September were valued at $1,986,463, representing an increase of 2 per cent over August exports, and of 5 per cent in comparison with September, 1924.

The principal decreases in comparison with August were shown in exports of wrapping paper other than kraft, paper and strawboard, sheathing and building paper, paperhangings and book paper. These losses were more than offset by increased exports of other classes of paper, notably newsprint, box board, wall board, paper bags, boxes and cartons, and surface coated paper.

Exports of newsprint continued to rise, reaching 3,737,059 pounds in September as compared with 3,115,847 pounds in August, and 1,815,802 pounds in September a year ago. Other important increases over September, 1924, were noted in cover paper, grease-proof and waterproof paper, toilet paper, bristols and bristol board, wall board, blotting paper, paper bags, and boxes and cartons. The most notable decreases under September, 1924, were found in book paper, which dropped from 2,157,093 pounds in September last year to 1,319,136 pounds in September this year; other paper and strawboard, including box board, from 5,768,827 pounds to 4,329,162 pounds; cigarette paper, from 77,387 pounds to 37,829 pounds, and hanging paper, from 1,260,295 pounds to 596,000 pounds.

Shipments of paper base stocks out of the U. S. during September totaled 8,886 tons, valued at $514,908, an increase in quantity of 20 per cent over September, 1924, and of 8 per cent over August, 1925. Of the items listed under this classification over 73 per cent consisted of rags and other paper stock, 24 per cent sulphite wood pulp, and the balance soda and other wood pulp.

IMPORTS

Wood Pulp

Pronounced strength, climbing prices, limited available supplies and a good demand are the outstanding features of the foreign wood pulp market. Papermakers in the United States have continued to buy pulp actively in recent weeks, having absorbed practically every lot of any class of pulp offered them at prices within reasonable bounds, and the situation—from the standpoint of supply—has become exceedingly bullish, so much so that there seems every reason to believe higher prices will be witnessed and that the market is destined to remain strong for months to come.

It is agreed generally that producers in the Scandinavian countries have surprisingly little pulp left to sell for next years' shipment. American and other consumers have bought Swedish pulps so heavily during the last two or three months they have virtually drained that Scandinavian country of nearly all of her 1926 production, latest statistics being that Swedish mills have disposed of fully 88 per cent of their total kraft pulp production for next year and at least 75 per cent of their sulphite output. Here is a comparison which gives a very clear insight into the supply situation now existing in Sweden: Three months ago mills in Sweden had more pulp for 1925 shipment to sell than they now have for 1926 shipment, according to a representative importer who has studied the figures relating to sales, stocks, etc., very carefully. This means, in other words, that the Scandinavian manufacturers have foresold practically an entire year's production of pulp within a period of three months. No longer is there any pulp left in Sweden for shipment prior to the close of the Baltic this winter, nor is there much tonnage remaining for sale for first open water shipment next spring. Most of the very recent contracts placed by U. S. buyers have involved pulp for shipment during the latter part of next year, and the condition has reached a point where mills in Scandinavia are not willing to effect further sales of what little supply of pulp they have to offer for shipment a year hence.

Imports of pulp into the United States are on a large scale. During September imports were larger than in the two previous months though a shade less than in June, amounting to 99,723 tons of chemical pulp, compared with 95,512 tons in August, 96,341 tons in July, and 100,162 tons in June, and 22,122 tons of ground wood, against 26,660 tons in August, 20,865 tons in July, and 26,963 tons in June. During the first nine months of this year the U. S. imported a total of 890,121 net tons of chemical pulp, giving a monthly average of 98,902 tons, contrasted with an average of 89,456 tons in the same period of months in 1924. Imports of mechanical pulp totaled 205,978 tons, or a monthly average of 22,886 tons, against an average of 16,024 tons in the first nine months of last year.

There has been a steady stiffening of pulp prices. Bleached sulphite of No. 1 quality is quoted at about 4.25 cents a pound ex dock New York or other American Atlantic ports; it is possible some brands can be bought at a couple of dollars per ton under this basis but 4.15 cents is regarded as approximately the bottom market level whereas choice grades are quoted at 4.50 cents and higher. Strong unbleached sulphite is selling at around 3.15 cents a pound ex dock New York, with some mill brands quoted at 3.25 and 3.30 cents, while easy bleaching sulphite is fetching 3.35 and 3.40 cents. Standard prime Swedish kraft is quoted at 3.15 cents or higher for next year's shipment, and it is said spot lots are commanding prices up around 3.30 cents ex dock New York. Groundwood of Scandinavian origin is quoted around $36 a ton on the dock at American ports.

Receipts at the port of New York during November and current market quotations ex dock New York follow:

Bleached sulphite, No. 1	4.15- 4.50
Unbleached sulphite, strong, No. 1	3.10- 3.30
Unbleached sulphite, No. 2	2.85- 3.10
Easy bleaching sulphite	3.30- 3.50
Mitscherlich unbleached, genuine	3.40- 3.60
Mitscherlich unbleached, ordinary	2.90- 3.10
Kraft, standard Swedish	3.15- 3.30
Groundwood, per ton	35.00-37.00

Lagerloef Trading Co., 167 bls. from Hamburg and 339 Bremen; Central Union Trust Co., 800 bls. from Oslo; E. M. Sergeant Co., 1,075 bls. from Oslo, 2,400 Hernosand and 2,195 Gothenburg; Perkins-Goodwin Co., 150 bls. from Oslo; Pagel, Horton & Co., 9,072 bls. from Ornskoldsvik, 3,600 Hernosand, 3,600 Soderhamn and 5,000 Gefle; Johaneson, Wales & Sparre, 3,600 bls. from Hernosand, 2,550 Sundsvall and 1,626 Gothenburg; Bulkley, Dunton & Co., 1,500 bls. from Sundsvall, 5,385 Soderhamn and 2,500 Gefle; Scandinavian Pulp Agency, 2,375 bls. from Sundsvall and 50 Gothenburg; J. Andersen & Co., 1,500 bls. from Hernosand, 1,500 Soderhamn, 2,350 Sarpsborg and 1,300 Oslo; International Acceptance Bank, 2,500 bls. from Soderhamn; Equitable Trust Co., 4,080 bls. from Soderhamn; Ira L. Beebe & Co., 1,520 bls. from Hamburg; Castle & Overton, 2,519 bls. from Hamburg and 276 Rotterdam; Price & Pierce, 6,000 bls. from Soderhamn; Tidewater Paper Mills Co., 12,075 bls. from Liverpool, N. S., and 5,718 Gaspe, Quebec; W. Hartmann & Co., 1,000 bls. from Hamburg; M. Gottesman

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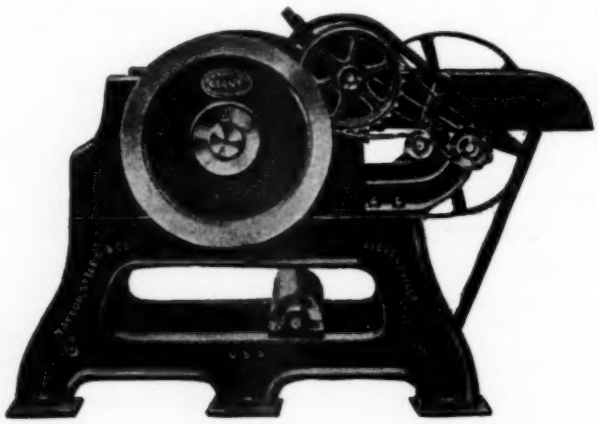

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& Co., 600 bls. from Rotterdam; Brown Bros. & Co., 250 bls. from Gothenburg; Chemical National Bank, 600 bls. from Oslo; Acer & Co., 6,286 bls. from Vancouver; Buck, Kiaer & Co., 300 bls. from Bremen; Order, 1,928 bls. from Bremen, 150 Raumo, 700 Rotterdam, 500 Gefle, 3,062 Wiborg and 1,997 Kotka.

Paper Stock

Although it is reported a rather narrow consuming outlet exists for most descriptions of foreign papermaking materials, imports into the United States keep up on a fairly high level, judging from the arrivals through the port of New York in November. There were some sizable shipments of rags received, while imports of old bagging showed an appreciable increase. Receipts of old rope and miscellaneous materials were about normal.

Imports of papermaking rags into the U. S. during September, according to Department of Commerce statistics, amounted to 47,478,124 pounds, compared with 50,793,623 pounds imported in August last and 55,392,289 pounds in September last year. During the first nine months of 1925 rag imports totaled 450,885,908 pounds, against 359,420,818 pounds in the corresponding time of 1924. During the same period imports of waste bagging, waste paper, etc., amounted to 93,876,779 pounds, contrasted with 80,240,733 pounds last year, while old rope and other paper stock imports totaled 50,252,552 pounds, compared with 74,572,433 pounds in the same time a year ago.

Imports of all kinds of papermaking material through the port of New York in November, with names of consignees, compiled from manifests of steamers reaching that port during the month, were as follows:

Old Rope

Brown Bros. & Co., 240 bls. and 581 coils; Ellerman's Wilson S. S. Line, 323 coils; William Steck & Co., 192 bls.; Darmstadt, Scott & Courtney, 115 coils and 46 bls.; W. Schall & Co., 63 bls.; S. Birkenstein & Sons, 47 bls.; Irving Bank-Columbia Trust Co., 45 bls. and 42 coils; Stone Bros. Co., 31 coils; Bank of New York & Trust Co., 102 coils; George M. Graves Co., 35 bls.; E. J. Keller Co., 799 bls.; Cohen & Co., 5 bls.; New York Trust Co., 39 bls.; Order, 23 bls.

Old Bagging

Mechanics & Metals National Bank, 368 bls.; S. Birkenstein & Sons, 94 bls.; Chase National Bank, 2,217 bls.; L. H. Abenheimer, 198 bls.; E. J. Keller Co., 563 bls.; Atterbury Bros., 133 bls.; Castle & Overton, 258 bls.; J. J. Patricof, 91 bls.; Marx Maier Paper Mill Supply Corp., 179 bls.; W. Schall & Co., 75 bls.; Brown Bros. & Co., 217 bls.; Kidder-Peabody Acceptance Corp., 72 bls.; Stone Bros. Co., 165 bls.; George W. Millar & Co., 391 bls.; Union National Bank of Philadelphia, 152 bls.; Columbia Trust Co., 108 bls.; National Park Bank, 81 bls.; Salomon Bros. & Co., 100 bls.; Irving Bank-Columbia Trust Co., 34 bls.; Darmstadt, Scott & Courtney, 119 bls.; Order, 759 bls.

Rags

Daniel M. Hicks, Inc., 126 bls.; Katzenstein & Keene, 123 bls.; E. J. Keller Co., 1,759 bls.; George M. Graves Co., 339 bls.; Atlas Waste Mfg. Co., 296 bls.; Stone Bros. Co., 1,019 bls.; Martin Nathan Co., 14 bls.; Salomon Bros. & Co., 305 bls.; A. H. Searle, Inc., 451 bls.; Victor Galaup, Inc., 573 bls.; Atterbury Bros., 122 bls.; J. M. Jaffe, 136 bls.; Castle & Overton, 269 bls.; Albion Trading Co., 45 bls.; Rudolf Wolf, 61 bls.; American Wool Stock Co., 115 bls.; C. R. Spence & Co., 178 bls.; J. Cohen & Son Co., 25 bls.; Robert Bishop Mfg. Co., 346 bls.; M. H. Meinhard & Co., 24 bls.; Marx Maier Paper Mill Supply Corp., 256 bls.; I. Abela & Co., 80 bls.; Jaffe Products Co., 20 bls.; Paul Berlowitz, 259 bls.; S. Silberman Co., 68 bls.; Atterbury & McKelvey, 380 bls.; Gustav Straus, 5 bls.; Anglo-South American Trust Co., 909 bls.; Central National Savings Bank & Trust Co., 354 bls.; Mechanics & Metals National Bank, 1,297 bls.; Equitable Trust Co., 1,762 bls.; National Bank of Commerce, 838 bls.; Chemical National Bank, 435 bls.; Bank of New York & Trust Co., 292 bls.; Chase National Bank, 162 bls.; New York Trust Co., 68 bls.; State Bank, 214 bls.; National City Bank, 570 bls.; Baltimore Trust Co., 81 bls.; Garfield National Bank, 236 bls.;

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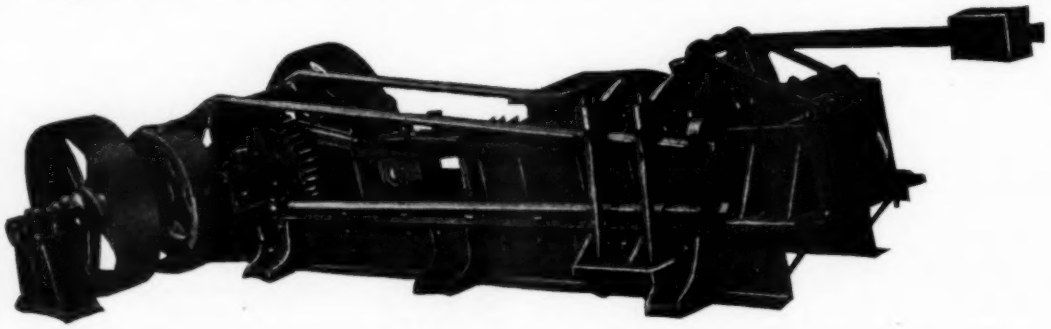

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Prepares Bark for Fuel 52 Per Cent Dry

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Irving Bank-Columbia Trust Co., 167 bls.; United States Lines, 15 bls.; The Barrett Co., 593 bls.; Strupp & Co., 182 bls.; Murray Freighting Corp., 70 bls.; North German Lloyd, 36 bls.; R. F. Downing & Co., 82 bls.; Goldman, Sachs & Co., 450 bls.; A. W. Fenton, Inc., 5,251 bls.; Brown Bros. & Co., 1,777 bls.; Amsinck, Sonne & Co., 734 bls.; W. Schall & Co., 86 bls.; Order, 2,683 bls.

Miscellaneous Paper Stock

Brown Bros. & Co., 89 bls.; J. Cohen & Son Co., 30 bls.; Maurice O'Meara Co., 24 bls.; Milton Snedeker Corp., 145 bls.; Reis & Co., 37 bls.; Seaboard National Bank, 76 bls.; Anglo-South American Trust Co., 281 bls.; Salomon Bros. & Co., 78 bls.; National City Bank, 60 bls.; American Exchange National Bank, 23 bls.; Guaranty Trust Co., 26 bls.; E. Butterworth & Co., 74 bls.; Order, 380 bls.

Paper

Imports of paper into the United States continue fairly large, taking the receipts through the port of New York during November as a criterion. Some sizable lots of wrapping and printing paper were received last month, while usual amounts of cigarette, filter, drawing, hanging and other kinds of paper were imported.

Imports of paper of all kinds into the U. S. in September, according to figures issued by the Department of Commerce, totaled in value $9,066,302, contrasted with $9,498,805 in August last, and $9,227,589 in September, 1924. During the first nine months of the current year paper imports were valued at $87,958,136, against $87,912,314 during the corresponding period of 1924.

Paper imports of all classes through the port of New York in November follow, these data being taken from the manifests of vessels arriving at that port during the month:

Printing

Perkins-Goodwin Co., 71 cs. from Liverpool, 18 cs. Antwerp and 60 cs. Hamburg; P. C. Zuhlke, 84 cs. from Antwerp and 42 cs. Rotterdam; E. Dietzgen & Co., 51 cs. from Rotterdam and 18 cs. Hamburg; Perry, Ryer & Co., 77 cs. from Liverpool and 700 cs. Glasgow; Oxford University Press, 10 cs. from Liverpool; B. F. Drakenfeld & Co., 72 cs. from Liverpool; F. L. Kraemer & Co., 3 bls. from Liverpool; Titan Shipping Co., 20 cs. from London and 61 cs. Southampton; Irving Bank-Columbia Trust Co., 210 rolls from Hamburg; Martin & Bechtold, 35 cs. from Bremen; W. Hartmann & Co., 168 rolls from Rotterdam and 76 bls. Hamburg; Parsons & Whittemore, 300 rolls from Bremen; Robert Wilson Paper Co., 40 bdls. from Leith; Norwegian Paper Mills Agency, 533 bls. from Oslo; C. B. Richard & Co., 66 rolls from Hamburg; M. Gottesman & Co., 152 rolls from Gothenburg; Leonhardt & Brush, 73 rolls from Hamburg; Globe Shipping Co., 10 cs. from Rotterdam; Bowater Paper Co., 2,995 rolls from Cornerbrook, N. F.; Southern Pacific Co., 65 rolls from Hamburg and 37 bls. Gothenburg; Steiner Paper Corp., 11 cs. from Rotterdam; Hudson Trading Co., 184 rolls and 17 cs. from Rotterdam; Chemical National Bank, 99 rolls from Hamburg; P. Puttmann, 35 cs. from Havre; Order, 185 rolls and 41 cs. from Bremen, 111 rolls London, 36 bls. Oslo, 12 cs. Rotterdam, 19 bls. Gothenburg, and 77 bls., 638 rolls and 289 cs. Kotka.

Wrapping

J. P. Heffernan Paper Co., 15 bls. from Antwerp, 223 bls. Hamburg and 214 bls. Gothenburg; Irving Bank-Columbia Trust Co., 395 bls. from Hamburg; Padin Bros., 48 rolls from Ponce; International Forwarding Co., 12 cs. from Rotterdam; F. C. Strype, 314 cs. from Rotterdam and 39 rolls Antwerp; Blauvelt-Wiley Paper Mfg. Co., 45 cs. from Glasgow; Foreign Paper Mills, 381 rolls from Gothenburg; C. K. MacAlpine & Co., 579 rolls from Gothenburg; Thomas Barrett & Son, 20 rolls from Gothenburg; Borregaard Co., 857 bls. and 3,538 rolls from Gothenburg; Wilkinson Bros. & Co., 186 bls. and 446 rolls from Gothenburg; Arkell Safety Bag Co., 647 rolls and 39 bls. from Gothenburg; F. L. Kraemer & Co., 38 bls. from Hamburg; Brown Bros. & Co., 50 bls. from Hamburg; Safety Insulated Wire & Cable Co., 184 rolls from Glasgow; Maurice O'Meara Co., 518 bls. from Gothenburg; Gilbert Paper Co., 100 bls. and 64 rolls from Gothenburg; Universal

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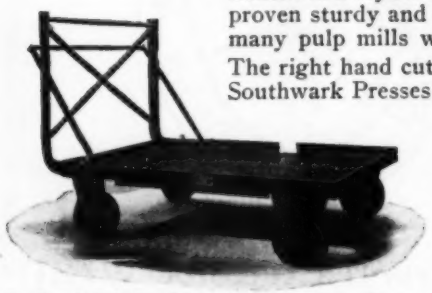

Southwark Pulp Truck, for Use with Presses Shown at the Right. Saves Time and Labor

Southwark Hydraulic Presses for dehydrating pulp have proven sturdy and efficient machines in every one of the many pulp mills where we have installed them.

The right hand cut shows an installation of four 600-ton Southwark Presses in a large pulp and paper mill. These presses are designed for use with Southwark Pulp Trucks, the trucks are loaded and run under the press, the pulp being compressed directly on the truck.

This feature gives fast operation, saves labor and eliminates curbs, boxes or other containers on the press.

Four 600-Ton Southwark Pulp Presses, Minnesota & Ontario Paper Co., International Falls, Minn.

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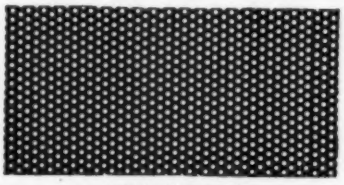
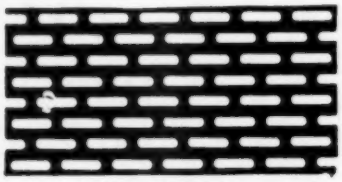
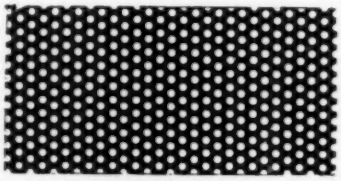
Perforated Metal Screens for Pulp and Paper Mills



.065 inch round



⅛ x ⅝" Slots



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Steel, Copper, Brass, Bronze and other alloys punched for Centrifugal and Rotary Screens, Pulp Washers, Drainer Bottoms, Filter Plates, etc.

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is equipped to make tests, on a commercial scale [under the direction of Prof. W. L. Badger] on problems involving evaporation, crystallization, heat transfer, etc., at a moderate charge.

Paper Co., 289 rolls and 49 bls. from Gothenburg; L. Bamberger & Co., 138 bls. from Gothenburg; Guaranty Trust Co., 80 rolls from Hamburg; M. M. Cohen, 113 bls. and 212 rolls from Gothenburg; Crepe Kraft Co., 43 rolls from Gothenburg; H. J. Heintz & Co., 6 bls. from Gothenburg; Order, 301 cs. from Antwerp, 14 cs. Hamburg, 7 cs. Rotterdam and 211 rolls London.

Cigarette

Standard Products Corp., 546 cs. from Havre, 94 cs. Marseilles and 40 cs. Southampton; P. J. Schweitzer, 142 cs. from Marseilles; J. C. Murray & Co., 6 cs. from Barcelona; M. Spiegel & Sons, 14 cs. from Bordeaux and 8 cs. Genoa; Surbrug Co., 5 cs. from Havre; Southern Pacific Co., 3 cs. from Havre; American Tobacco Co., 1,200 cs. from Bordeaux, DeManduit Paper Corp., 440 cs. from St. Nazaire.

Writing

Guibont Freres & Co., 10 cs. from Havre and 18 cs. Southampton; Blue Print Co., 8 cs. from Marseilles; F. C. Strype, 7 cs. from Marseilles; Keuffel & Esser Co., 4 cs. from Marseilles; Bank of the Manhattan Co., 15 cs. from Marseilles; E. Dietzgen & Co., 22 cs. from Marseilles; Independent Forwarding Co., 93 pkgs. from Liverpool; F. L. Kraemer & Co., 4 cs. from London; Sanderson & Son, 20 pkgs. from Southampton; Distinctive Writing Paper Co., 4 cs. from Southampton; Order, 25 cs. from Trieste.

Drawing

H. Reeve Angel & Co., 5 cs. from London; Keuffel & Esser Co., 4 cs. from Southampton, 8 cs. London and 23 cs. Hamburg; Leonhardt & Brush, 82 cs. and 75 rolls from Hamburg; E. Dietzgen & Co., 52 cs. from Hamburg; Globe Shipping Co., 27 cs. from Bremen; Devoe & Raynolds Co., 3 cs. from London.

Filter

J. Manheimer, 114 bls. from Southampton; H. Reeve Angel & Co., 30 cs. from London and 88 bls. Southampton; C. Schleicher & Schull, 6 cs. from Hamburg; Bernard, Judae & Co., 4 cs. from Gothenburg; Zinkeisen & Co., 6 bls. from Hamburg; E. Fougera & Co., 16 cs. from Southampton.

Tissue

F. C. Strype, 12 cs. from Liverpool; B. Altman & Co., 7 cs. from Southampton; F. L. Kraemer & Co., 3 cs. from London; L. Greenberg & Co., 6 cs. from Hamburg; S. Haufling Co., 100 bls. from Hamburg; J. B. Mast & Co., 3 cs. from Genoa; Wilkinson Bros. & Co., 51 cs. from Genoa; Globe Shipping Co., 4 cs. from Rotterdam.

Photo

Gevaert Co. of America, 192 cs. from Antwerp and 100 cs. Rotterdam; P. C. Zuhlke, 137 cs. from Rotterdam; C. B. Richard & Co., 5 cs. from Bremen; Globe Shipping Co., 243 cs. from Bremen; F. Henjes, Jr., 68 cs. from Bremen; Phoenix Shipping Co., 8 cs. from Hamburg; Defender Photo Supply Co., 10 cs. from Antwerp; Order, 60 cs. from Antwerp.

Hanging

F. J. Emmerich & Co., 36 bls. from London, 61 bls. Liverpool, 45 bls. Hamburg and 24 cs. Southampton; C. A. Haynes & Co., 151 cs. from London and 18 pkgs. Southampton; A. C. Dodman, Jr., & Co., 279 bls. from Liverpool, 187 pkgs. Southampton and 13 bls. Antwerp; B. Illfelder & Co., 8 cs. from Bremen; R. F. Downing & Co., 26 bls. from Southampton; W. H. S. Lloyd & Co., 13 cs. from Liverpool; P. Puttmann, 30 cs. from Havre; G. J. Hunkers & Co., 13 cs. from Hamburg.

Board

Adrian Vuyck, 1,058 rolls from Rotterdam; J. J. Shore & Co., 7 cs. from Havre; Hansa Paper Corp., 820 pkgs. from Rotterdam; O. M. Baxter, Inc., 70 cs. from Gothenburg; C. F. Vogeling, 3 bls. from Hamburg; Bendix Paper Co., 96 cs. from Hamburg; Metropolitan Import & Mfg. Co., 48 cs. from Hamburg; Godet, Inc., 4 cs. from Havre; W. F. Collins & Co., 3 cs. from Havre; Order, 77 cs. from Hamburg.

Tear a sheet of paper in which "S" Brand or "A Syrup" Silicate has been used. It doesn't take a microscope to tell the difference.

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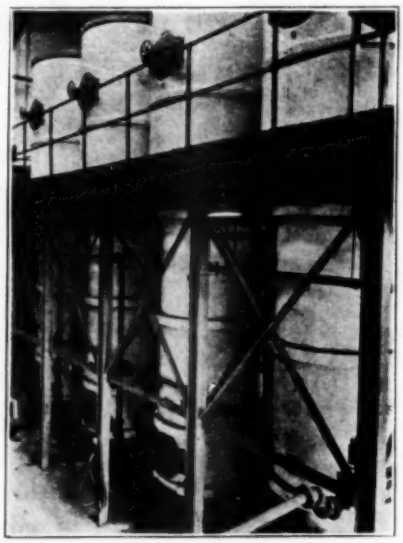

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Foreign Trade Opportunities

Additional information regarding the following foreign trade opportunities issued by the Bureau of Foreign and Domestic Commerce of the United States Department of Commerce may be obtained from the Bureau in Washington, D. C., or its branch offices. It is requested that the number of the inquiry be given at all times.

No. 17569—Newsprint paper. Concepcion, Chile. Agency desired.

No. 17573—Old newspapers. Bombay, India. Purchase and agency desired.

No. 17570—Machinery for paper and cardboard manufacture and also for paper box making. Vienna, Austria. Agency desired.

No. 17572—Paper and cardboard. Buenos Aires, Argentina. Agency desired.

No. 17567—Paper, note and envelopes, in highly decorated boxes. Rosario, Argentina. Purchase desired.

No. 17597—Pasteboard, Caracas, Venezuela. Purchase desired.

No. 17501—Stationery, household. Lahore, India. Purchase and agency desired.

No. 17571—Stationery and specialties. The Hague, Netherlands. Agency desired.

No. 17568—Wall paper. Karachi, India. Agency desired.

No. 17696—Bags and wrapping paper. San Juan, Porto Rico. Agency desired.

No. 17693—Cardboard crates for bananas. Teneriffe, Canary Islands. Purchase and agency desired.

No. 17653—Newsprint and other paper. Karachi, India. Agency desired.

No. 17695—Paper, especially print paper. Caracas, Venezuela. Agency desired.

No. 17692—Paper cutting machinery, waxing machinery, and manila wrapping papermaking machinery. Ghent, Belgium. Purchase desired.

No. 17694—Paper, lithographing and printing. Malaga, Spain. Agency desired.

No. 17642—Toilet paper, cheap grade. Vancouver, Canada. Purchase and agency desired.

No. 17704—Paper and stationery. Bombay, India. Agency desired.

No. 17739—Napkins, drinking cups, spoons and plates, and tissue paper. Toronto, Canada. Agency desired.

No. 17732—Paper. Rio de Janeiro, Brazil. Agency desired.

No. 17769—Toilet paper machine to cut in rolls. Melbourne, Australia. Purchase desired.

No. 17904—Machinery for making spiral paper tubes. Geneva, Switzerland. Purchase desired.

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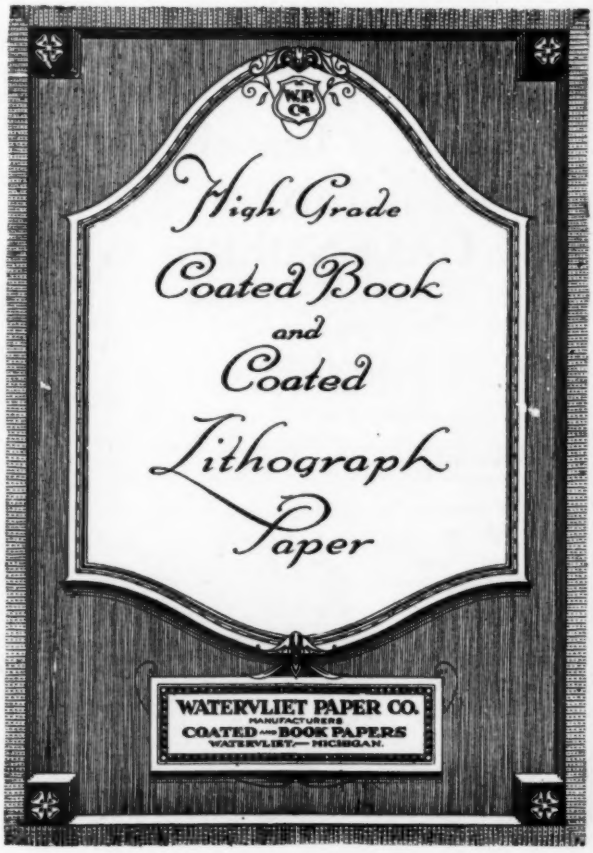

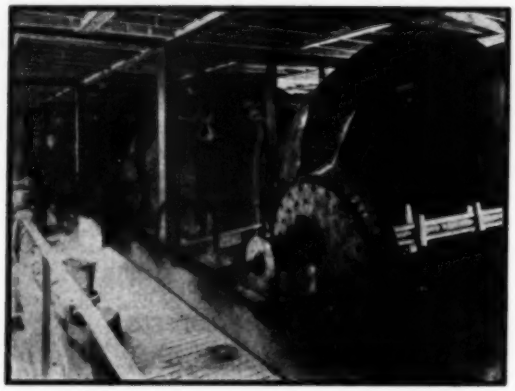

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Globe and Cylinder Rotary Bleaching Boilers
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Flumes, Smokestacks, Penstocks, General Steel Plate Construction of every description.

Forty-three Biggs Rotaries Furnished One Company

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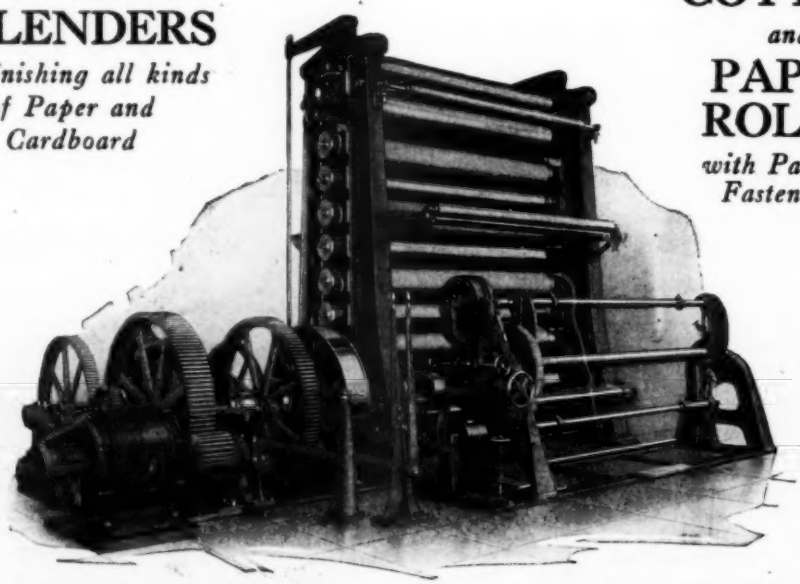

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